

Regulatory and  
Infrastructure  
Obstacles to  
Free Trade



Lyndon B. Johnson School of Public Affairs  
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Number 98

## **TEXAS-MEXICO TRANSBORDER TRANSPORTATION SYSTEM**

**Regulatory and Infrastructure Obstacles to Free Trade**

A report by the  
Texas-Mexico Transborder Transportation System  
Policy Research Project  
as part of the  
Program for U.S.-Mexican Policy Studies  
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## Contents

|                                                                                        |      |
|----------------------------------------------------------------------------------------|------|
| Policy Research Participants .....                                                     | iii  |
| Foreword .....                                                                         | xi   |
| Acknowledgments .....                                                                  | xiii |
| Chapter 1. Introduction .....                                                          | 1    |
| Purpose .....                                                                          | 1    |
| Findings .....                                                                         | 2    |
| Chapter 2. Demographic and Economic Summary of<br>the Texas-Mexico Border Region ..... | 5    |
| Introduction .....                                                                     | 5    |
| Border Location .....                                                                  | 5    |
| Border Economy .....                                                                   | 5    |
| Bilateral Trade .....                                                                  | 8    |
| The Border Population and Labor Force .....                                            | 14   |
| Infrastructure .....                                                                   | 14   |
| Chapter 3. Texas-Mexico Transborder Transportation System .....                        | 21   |
| Introduction .....                                                                     | 21   |
| Motor Carriers .....                                                                   | 21   |
| Highways .....                                                                         | 23   |
| Mexico .....                                                                           | 23   |
| United States .....                                                                    | 24   |
| International Bridges .....                                                            | 26   |
| Rail Transportation .....                                                              | 27   |
| Texas .....                                                                            | 27   |
| Mexico .....                                                                           | 28   |
| Ocean Shipping .....                                                                   | 30   |
| Texas .....                                                                            | 30   |
| Mexico .....                                                                           | 31   |
| Air Carrier Transportation .....                                                       | 31   |
| Texas .....                                                                            | 31   |
| United States-Mexico Cargo Market .....                                                | 35   |
| Mexico .....                                                                           | 36   |
| Conclusions .....                                                                      | 38   |
| Chapter 4. U.S. and Mexican Regulatory Issues .....                                    | 45   |
| Introduction .....                                                                     | 45   |
| Bilateral Negotiations .....                                                           | 45   |
| Framework Agreements .....                                                             | 45   |
| Transportation Working Group .....                                                     | 46   |
| Current Status of Transportation Working Group .....                                   | 46   |
| Motor Carrier Access Issues .....                                                      | 46   |
| Certificates of Registration .....                                                     | 47   |
| Important U.S. Federal Legislation Concerning<br>Motor Carriers .....                  | 47   |
| Motor Carrier Safety Issues .....                                                      | 47   |
| Background on Motor Carrier Safety<br>Assistance Program .....                         | 48   |
| Texas and the MCSAP .....                                                              | 48   |
| Enforcement Capabilities .....                                                         | 49   |

|                                                                    |    |
|--------------------------------------------------------------------|----|
| Recent Developments in Regulation of                               | 49 |
| Motor Carriers                                                     | 49 |
| Inspections                                                        | 50 |
| Insurance                                                          | 50 |
| Driver's License                                                   | 51 |
| Recent Economic Reform in Mexico                                   | 51 |
| Transportation Deregulation in Mexico                              | 52 |
| The Market Structure of Motor Carrier                              | 53 |
| Transportation Before Deregulation                                 | 53 |
| Deregulation of the Motor Carrier Transport Market                 | 55 |
| For-Hire Carrier Concession Application Procedures                 | 56 |
| Motor Carrier Insurance Requirements                               | 56 |
| Multimodal Transportation Deregulation                             | 57 |
| U.S.-Mexico Trade and Motor Carrier Transportation                 | 57 |
| Rail Transportation                                                | 59 |
| Accomplishments                                                    | 59 |
| Conclusions                                                        | 60 |
| <b>Chapter 5. Customs Operations and Procedures</b>                | 69 |
| Introduction                                                       | 69 |
| Process                                                            | 69 |
| The Role of the Customs Broker                                     | 72 |
| Computerization                                                    | 72 |
| Line Release                                                       | 73 |
| Problems                                                           | 74 |
| Automated Broker Interface                                         | 74 |
| Line Release                                                       | 74 |
| Infrastructure                                                     | 75 |
| Staffing                                                           | 75 |
| Accomplishments                                                    | 75 |
| Sealed Container Pilot Project                                     | 76 |
| Line Release                                                       | 76 |
| Central Examination Stations                                       | 76 |
| Expansion of Services                                              | 76 |
| Proposed Solutions                                                 | 77 |
| Conclusions                                                        | 80 |
| Policy Recommendations                                             | 81 |
| <b>Chapter 6. Financing Improvements in Mexican Transportation</b> | 85 |
| Introduction                                                       | 85 |
| Current Investment Guidelines                                      | 85 |
| Investment in Transportation                                       | 86 |
| Infrastructure Investment                                          | 86 |
| Road and Highway Transportation                                    | 86 |
| Rail Transportation                                                | 88 |
| Maritime Transportation and Seaports                               | 89 |
| Air Transportation                                                 | 89 |
| Conclusions                                                        | 90 |
| <b>Appendix A. Maquiladora Plant Managers Survey</b>               | 93 |
| Introduction                                                       | 93 |
| Methodology                                                        | 93 |
| Target Groups                                                      | 93 |
| Questionnaire Content                                              | 93 |
| Summary of Responses                                               | 94 |
| Nature of Maquiladora Transborder Commerce                         | 94 |

|                                                                  |     |
|------------------------------------------------------------------|-----|
| Infrastructure Issues .....                                      | 95  |
| Customs Procedures and Regulations .....                         | 95  |
| Other Issues Affecting Transborder Trade .....                   | 96  |
| Summation of the Issues Affecting Transborder Trade .....        | 97  |
| Comments of the Responding Plant Managers .....                  | 97  |
| Identifying Relationships Between Border Issues                  |     |
| And Shipping Decisions .....                                     | 98  |
| Shuttle Carrier Rates and the Percentage of                      |     |
| Goods Shipped by Truck .....                                     | 98  |
| Delays Caused by U.S. Documentation Processing and               |     |
| the Percentage of Goods Shipped Through Specific                 |     |
| Border Points of Entry .....                                     | 99  |
| Effect of Transborder Bridges on Border Shipments .....          | 99  |
| The Effect Border Transportation Issues Have on                  |     |
| Decisionmaking .....                                             | 100 |
| Border Issues and Point of Entry Decisions .....                 | 100 |
| Key Border Issues and Decisions Concerning Mode                  |     |
| of Transportation .....                                          | 102 |
| Conclusions .....                                                | 104 |
| Appendix B. The Survey .....                                     | 107 |
| Appendix C. Narrative Responses .....                            | 109 |
| Appendix D. Detailed Statistics on Modes of Transportation ..... | 115 |





## List of Tables

|           |                                                                                           |    |
|-----------|-------------------------------------------------------------------------------------------|----|
| Table 2.1 | Employment by Industry for the Fourth Quarter of 1988 .....                               | 7  |
| Table 2.2 | Mexico's Maquila Industry (principal cities by number of plants) .....                    | 10 |
| Table 2.3 | U.S. Imports from Mexico under HTS Subheading 9802.00.60, by Commodity Groups, 1988 ..... | 13 |
| Table 2.4 | Population in the Border Counties: 1980, 1984, 1990, and 2000 .....                       | 15 |
| Table 2.5 | Average Weekly Wage and Total Payrolls for the Fourth Quarter of 1988 .....               | 16 |
| Table 2.6 | Maquiladora Industrial Statistics: Tamaulipas .....                                       | 17 |
| Table 2.7 | Labor Force and Unemployment in the Border Counties: 1984 and August 1989 .....           | 18 |
| Table 3.1 | International Bridges .....                                                               | 26 |
| Table 3.2 | Loading Areas in Mexico .....                                                             | 29 |
| Table 3.3 | Carrier Traffic Growth and Market Share .....                                             | 37 |
| Table 3.4 | U.S. Airborne Trade with Mexico .....                                                     | 37 |

## List of Figures

|            |                                                                               |    |
|------------|-------------------------------------------------------------------------------|----|
| Figure 2.1 | The Mexico-United States Border Area .....                                    | 6  |
| Figure 2.2 | Values Imported, Exported, and Added by Maquiladora Industry, 1985-1988 ..... | 9  |
| Figure 2.3 | U.S. Trade with Mexico, 1981-1988 .....                                       | 11 |
| Figure 2.4 | 1987 Texas Exports to Mexico by Port of Exit .....                            | 12 |
| Figure 3.1 | The Mexico-United States Border States and Counties .....                     | 22 |
| Figure 5.1 | U.S. Border Stations along the Southern Border, GSA Region 7 .....            | 70 |



## Foreword

The Lyndon B. Johnson School of Public Affairs has established interdisciplinary research on policy problems as the core of its educational program. A major part of this program is the nine-month policy research project, in the course of which two or three faculty members from different disciplines direct the research of ten to twenty graduate students of diverse backgrounds on a policy issue of concern to a government agency. The "client orientation" brings students face to face with administrators, legislators, and other officials active in the policy process, and demonstrates that research in a policy environment demands special talents. It also illuminates the occasional difficulties of relating research findings to the world of political realities.

The curriculum of the LBJ School is intended not only to develop effective public servants but also to produce research that will enlighten and inform those already engaged in the policy process. The project that resulted in this report has helped accomplish the first task. It is our hope and expectation that the report itself will contribute to the second.

Finally, it should be noted that neither the LBJ School nor The University of Texas at Austin necessarily endorses the views or findings of this study.

Max Sherman  
Dean



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## Chapter 1. Introduction

### PURPOSE

The purpose of this study is to provide a comprehensive overview of the Texas-Mexico transborder transportation system. The trade relationship between the United States and Mexico is extremely important. Two-way trade in 1988 totaled \$44 billion, with much of it passing along the 1,200-mile-long Texas-Mexico border. As a result, the modal operations (motor carriers, rail, air, and ocean transport) and supporting infrastructure (highways and bridges, rail terminals and track, airports, and seaports) that comprise the Texas-Mexico transborder transportation system are important to the economic vitality of both nations.

Chapter 2 serves as a primer on the economy and demographics of the Texas-Mexico border region. It briefly delineates the extent of bilateral trade, and the border region's resources, population characteristics, and nontransportation infrastructure needs (housing, water supplies, and health facilities).

Chapter 3 provides an overview of the transborder transportation system in terms of its component modal operations and infrastructure. Although specific attention is paid to the Texas-Mexico portion of the binational border, mention is made of transport activities elsewhere along the border when deemed appropriate to the discussion. Both the condition of the existing transportation system and plans for system expansion and improvement are addressed.

Chapter 4 addresses issues related to the regulatory framework that governs transborder commercial motor carrier operations. The first half of the chapter describes the status of various binational motor carrier access and safety-related issues and the process by which these issues are being resolved through bilateral negotiations. The second half discusses the implications of the Mexican government's recent initiatives to deregulate that nation's domestic trucking industry.

Chapter 5 focuses on the responsibilities and procedures of the United States and Mexican customs services. The transportation system operates through a set of 24 international ports of entry, 12 of which are located along the Texas-Mexico portion of the border. Ports of entry are conduits for the transportation of commercial and noncommercial traffic between countries. Particular attention is devoted to the operations of three ports of entry: Brownsville/Matamoros, Laredo/Nuevo Laredo, and El Paso/Ciudad Juárez.

Finally, Chapter 6 further examines the condition of Mexican transportation infrastructure by addressing alternative methods of financing transportation improvement projects: plans for Mexican federal government expenditures, federal government-private sector cooperative agreements, and the implications of the recent liberalization in Mexican foreign investment guidelines as potential sources of capital.

Appendix A discusses the results of a survey of maquiladora plant managers. As direct users of the transborder transportation system, maquiladoras are readily able to identify key issues they face in conducting transborder commerce, to estimate the effect on commerce created by these issues, and to suggest possible solutions to existing problems. Appendix B contains a copy of the survey instrument. Appendix C contains narrative comments by respondents to questions 5 and 6 of the survey questionnaire. Question 5 concerns the effects of 25 issues on transborder commerce; question 6 asked respondents to suggest policy initiatives that the U.S. or Mexican government could adopt to improve transportation, infrastructure, or regulatory processes. Finally, Appendix D contains voluminous statistics on various aspects of the transborder transportation system: productivity in the transport sector; Mexican firms that have flown cargo into the U.S.; Mexican subsidies by mode of transport; employment and salary by mode of transport; truck shipments; tons of transported cargo; and the like.

## FINDINGS

As the volume of bilateral trade between the U.S. and Mexico increases, an efficient transborder transportation system will be needed to facilitate the distribution of goods; indeed, inadequate transportation infrastructure may prove to be the ultimate structural obstacle to realizing the full potential of bilateral trade to be derived from a free-trade agreement. Most Mexican transportation infrastructure--roadways, rail and air facilities, and seaports--is in need of repair or expansion to accommodate higher levels of commerce and trade. The need for transportation infrastructure improvements increases as one moves into the interior of Mexico. The decay and neglect of Mexican transport services are in large part due to the prolonged economic crisis of the early 1980s. Attempts to rectify this situation have centered on increased levels of federal government expenditures in the transport sector, several examples of government-private sector cooperative agreements, and reforms to attract foreign capital to augment available domestic sources of capital investment. The privatization of public works is intended as yet another vehicle of financing infrastructure improvements. Several plans are in the process of being implemented to rebuild and refurbish roadway, rail, air, and seaport facilities when funding is available to accomplish such tasks.

Although the U.S. border transportation infrastructure generally is in much better condition than that of Mexico, it is not adequate to efficiently accommodate the significantly higher levels of traffic expected from a free-trade agreement. Plans to expand and improve transport capacity on the Texas side of the border also exist, but more ambitious programs may be needed to prevent future transportation bottlenecks.

On the regulatory front, the U.S. has managed to streamline the process of establishing operating authority for Mexican motor carriers operating in the U.S. border commercial zones. The single certificate of registration grants this limited operating authority and attests to the carriers having obtained the required levels of insurance, complied with U.S. safety standards, and paid road taxes. The national commercial driver's license standard also facilitates enforcement and ensures proper skills for the operation of motor vehicles by Mexican drivers in the U.S. Since Texas joined the Motor Carrier Safety Assistance Program (MCSAP) in 1989, a consistent safety regime has been in place along the entire U.S. border.

This regulatory evolution has proven beneficial to both countries. For Mexico, the registration process has been simplified and expedited. This simplification has also allowed more effective and efficient regulation of Mexican trucking activity in the U.S. With increased enforcement capabilities and increasingly sophisticated Mexican equipment, American concern over unsafe Mexican trucks has been reduced.

While the U.S. has largely completed its own regulatory reform, it will benefit from deregulation in Mexico. More compatible access regulations from the Mexican government, both cross-border and into the interior of Mexico, are prime U.S. objectives. More extensive access for U.S. carriers is being considered but is likely to assume a shape compatible with the needs of domestic Mexican constituents.

Until an unrestricted system is achieved, effective alternatives exist that have not been adequately explored and developed. Interline agreements and extensive equipment exchanges, for example, would permit a more efficient interchange and distribution of goods, while still working within the current Mexican regulatory framework.

Domestic motor carrier deregulation in Mexico has been dramatic. Restrictions that limited the volume of traffic and the number of for-hire motor carriers have been rescinded, creating the potential for significant future competition in the domestic motor carrier industry. The application process for obtaining concessions (operating authority), once the most effective barrier to entry, has been reduced to a simple and open process. Cargo centers, associations of

concessionaires that controlled routes through a central hub and allocated cargo among carriers, now function as open service centers for all motor carriers. A new system of roadside stops is now being constructed to improve the safety performance of vehicular traffic. However, the full effect of deregulation has yet to be seen; some Mexican government officials argue that large-scale price competition in the motor carrier industry is unlikely to take place until deficiencies in highway infrastructure are rectified.

Customs operations on both sides of the border have led to increased delays and other problems in the processing of transborder commercial shipments as the level of bilateral trade has increased. Both the U.S. and Mexican customs services are cognizant of these bottlenecks, and both have instituted changes, with mixed results. Measures implemented to alleviate existing problems at times have created an entirely new and unanticipated array of difficulties.

For example, delays in the system are due primarily to inadequate customs processing facilities. The importance of updating and expanding facility infrastructure is confirmed by the extensive efforts outlined by the Border Station Improvement Task Force. However, many have come to realize that expanded facilities and extended hours of operation often lead to greater staffing requirements. This realization was most evident during the recent freeze on hiring that was lifted in October 1990. However, some advancements have succeeded in reducing manpower requirements; the "super booths" at El Paso allow one customs agent to process and clear shipments simultaneously.

Other complications have been associated with the Automated Broker Interface (ABI) system. Although the achievements of this system are impressive, start-up costs and capital outlays for computer hardware and software are beyond the reach of many small brokers. The system places clerical burdens on the broker and has led to much discontent. Clearly, automation is not a negative development, but it would appear that the customs services on both sides of the border are experiencing a technology lag with respect to the rapid increase in trade. Many other delays are the direct result of the nonconformity of technological advances to existing cargo profiles, as evidenced by the inability of line release to accommodate multiple product loads.

The current climate for foreign investment in Mexico is the most favorable it has been in recent history. By executive order, the May 1989 Investment Regulations instituted sweeping changes in foreign investment rules. Investment procedures have been simplified and many new opportunities now exist for both foreign and private investment, particularly in infrastructure. The Secretaria de Comunicaciones y Transportes (SCT) and the foreign investment branch of the Secretaria de Comercio y Fomento Industrial (SECOFI) are the governmental bodies responsible for promoting foreign and private investment in transportation infrastructure. SECOFI ensures that foreign investors meet investment guidelines, whereas the SCT periodically reviews the condition of existing infrastructure in order to draw up plans for future investment.

Finally, based on survey results, the poor condition of the Mexican highway infrastructure is a sensitive issue for maquiladora plant managers. Plant managers are eager to see improvements in this area. Other areas perceived to negatively affect their transborder operations are delays caused by Mexican and U.S. customs documentation processing, the lack of line release in Mexico, and nonuniform enforcement of Mexican customs regulations.





## Chapter 2. Demographic and Economic Summary of the Texas-Mexico Border Region

### INTRODUCTION

This chapter briefly summarizes the salient characteristics--geography, demographics, and economy--of the Texas-Mexico border region to establish the context within which the transborder transportation system operates. It also provides related information about the region's resources, supporting infrastructure, and binational trade relationship.

### BORDER LOCATION

The Texas-Mexico border extends over 1,250 miles from El Paso to Brownsville, Texas, on the Gulf of Mexico and is delineated by the Rio Grande/Rio Bravo. Sixteen Texas counties<sup>1</sup> face the four Mexican states.<sup>2</sup> Together they form one of the most important regions for trade in the Western Hemisphere. Border trade centers around six primary "twin cities" (Texas city named first): El Paso/Ciudad Juarez, Del Rio/Ciudad Acuña, Eagle Pass/Piedras Negras, Laredo/Nuevo Laredo, McAllen/Reynosa, and Brownsville/Matamoros. The border has distinct characteristics that set the region apart from the rest of the U.S. and Mexico. While one of its poorest regions can be found on the U.S. side, the Mexican border states make up the fastest growing area of Mexico.

### BORDER ECONOMY

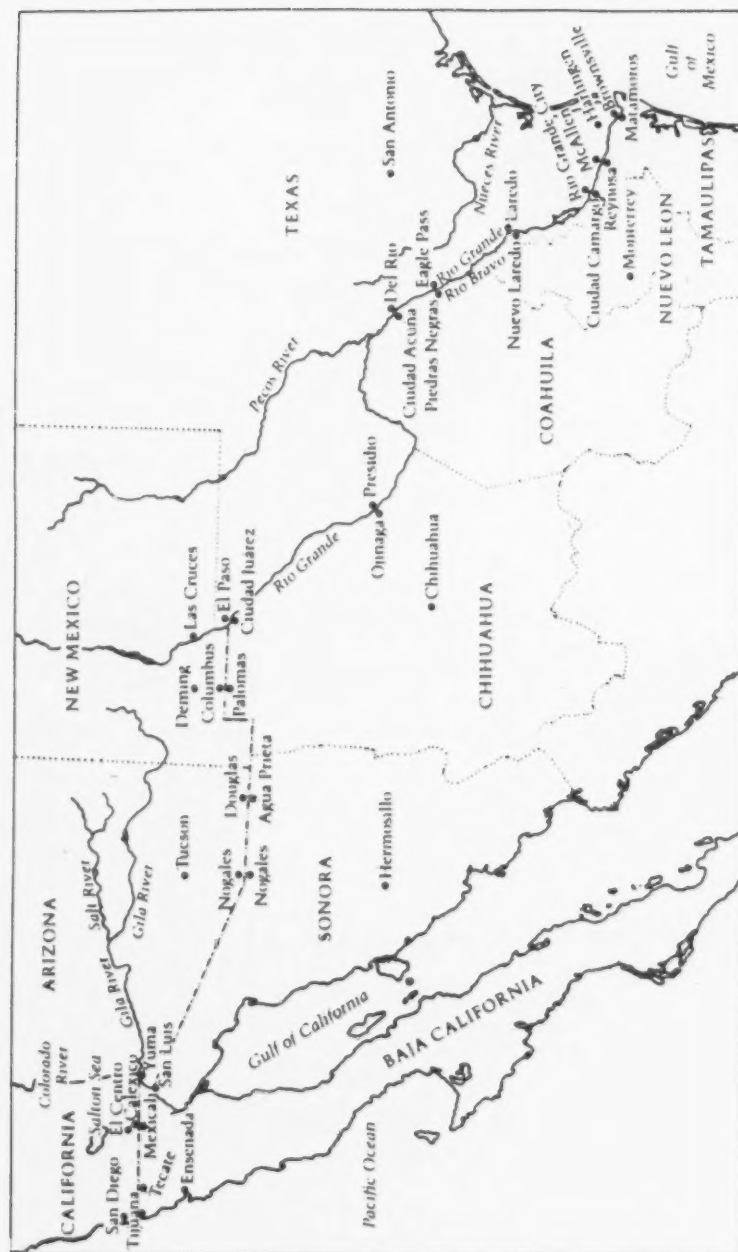
The economy of the Texas-Mexico border region is driven by three major sectors--agriculture; manufacturing, both maquiladora and other; and trade (including retail trade). Trade is the economic mainstay on both sides of the border and fuels many other activities as well. The other sectors vary in importance from area to area.

Agriculture plays an important role on the U.S. side. The easternmost counties produce fruits and vegetables for sale throughout the United States. However, agriculture is not as important in those counties which contain major ports of entry and thus have other means of income. This is reflected in the employment structure of each region. Table 2.1 shows the breakdown of employment by sector in each of the border counties in 1988. For example, El Paso county is home to the fourth largest city in Texas and one of the four largest cities on the United States-Mexico border, but only 0.84 percent (i.e., less than 1 percent) of the work force is employed in agriculture. In Presidio county, on the other hand, almost 20 percent of those employed are in agriculture.

Agriculture is also of great importance in the border states of Mexico. The state of Chihuahua, containing the medium-sized city of Ciudad Juarez--the twin city to El Paso--has the largest agricultural population along the border. Tamaulipas and Nuevo Leon follow closely behind, while Coahuila is fifth after the state of Sonora.<sup>3</sup>

Maquiladoras make up the bulk of industrial activity on the Mexican side of the border. Maquiladoras are plants to which materials are exported in bond into Mexico for further processing and re-export. In-bond production is covered under special provisions of U.S. and Mexican law that allow in-bond producers (maquiladoras) to export machinery for production, related equipment, and production inputs to Mexico duty-free, provided that 80 percent of the plant production is exported. In turn, in-bond producers import assembled products into the U.S., paying duties on only the value added in Mexico.<sup>4</sup> Many factors have contributed to the phenomenal growth of the maquiladora industry over the past decade: low Mexican wages, made even lower in dollar terms from peso devaluations; the ability to re-export to the United States by paying U.S. duties only on the value added in Mexico; proximity to the United States; less stringent restrictions on land ownership by non-Mexicans; and other incentives for

Figure 2.1 The Mexico-United States Border Area



Source: Niles Hansen, *The Border Economy: Regional Development in the Southwest* (Austin, Texas: University of Texas Press, 1981), p. 4.



**Table 2.1**  
**Employment by Industry for the Fourth Quarter of 1988**

| <u>County</u> | <u>Agric.</u> | <u>Manuf.</u> | <u>Trade</u> | <u>Other</u> | <u>Total</u> |
|---------------|---------------|---------------|--------------|--------------|--------------|
| El Paso       | 1,551         | 40,098        | 48,965       | 113,691      | 204,305      |
| Hudspeth      | 152           | ***           | 74           | 362          | 588          |
| Culberson     | 83            | ***           | 353          | 941          | 1,377        |
| Jeff Davis    | 48            | 0             | 62           | 343          | 453          |
| Presidio      | 201           | ***           | 268          | 565          | 1,034        |
| Brewster      | 80            | 87            | 665          | 1,921        | 2,753        |
| Terrell       | 29            | ***           | 64           | 227          | 320          |
| Val Verde     | 102           | 404           | 2,292        | 4,857        | 7,655        |
| Kinney        | 45            | ***           | 68           | 412          | 525          |
| Maverick      | 717           | ***           | 1,995        | 4,514        | 7,226        |
| Webb          | 483           | 1,847         | 12,619       | 23,542       | 38,491       |
| Zapata        | 16            | ***           | 212          | 1,146        | 1,374        |
| Starr         | 1,057         | 49            | 1,238        | 3,763        | 6,107        |
| Hidalgo       | 12,533        | 12,635        | 30,075       | 51,179       | 106,422      |
| Cameron       | 2,381         | 10,160        | 18,470       | 38,208       | 69,219       |

Source: Texas Employment Commission, Covered Employment and Wages by Industry and County, 4th Quarter 1988, pp. 6-11.

0 = no employment reported in a county in one of the industry groups

\*\*\* = when 1 or 2 employers comprise 80 percent or more of the employment for an industry group in a county, then employment for that industry is shown under "Other."

for foreign-equity ownership and use of foreign management personnel introduced by the Mexican government. Figure 2.2 shows how dynamic the maquiladora industry was between 1985 and 1989. In 1990, the industry was expected to provide employment for about 450,000 people and earn some \$3 billion in foreign exchange. Much of this growth has taken place in the Mexican states that border Texas.

Table 2.2 shows that in the six cities shown, between June 1987 and June 1989, there was over a 40-percent increase in the number of maquiladora plants in operation. While Tijuana has the greatest number of maquiladoras, Ciudad Juarez is first in number of employees and value added of all cities in which there are maquiladoras. Ciudad Juarez experienced a 39-percent increase in the number of plants between 1986 and 1989. Matamoros came in a close second with almost a 107-percent increase between 1986 and 1989. This increased overall economic activity helped sustain and expand local economies.

Manufacturing is also important on the U.S. side of the border. Table 2.1 shows that over 15 percent of the border work force was employed in manufacturing at the end of 1988. El Paso county had the highest number of employees in manufacturing: 40,098 workers in almost 500 plants. Mineral refining, manufacturing electronics, apparel production, and food processing dominate industrial production on both sides of the border. In addition, the auto industry has gained considerable importance on the Mexican side.

## BILATERAL TRADE

The United States and Mexico are important trade partners. Mexico is the third largest foreign market for the United States (behind Canada and Japan), while the U.S. purchases between 60 and 70 percent of all Mexico's exports.<sup>5</sup> The two countries have strengthened their trade partnership recently because of improved economic conditions in Mexico and changes in Mexico's import restrictions.<sup>6</sup>

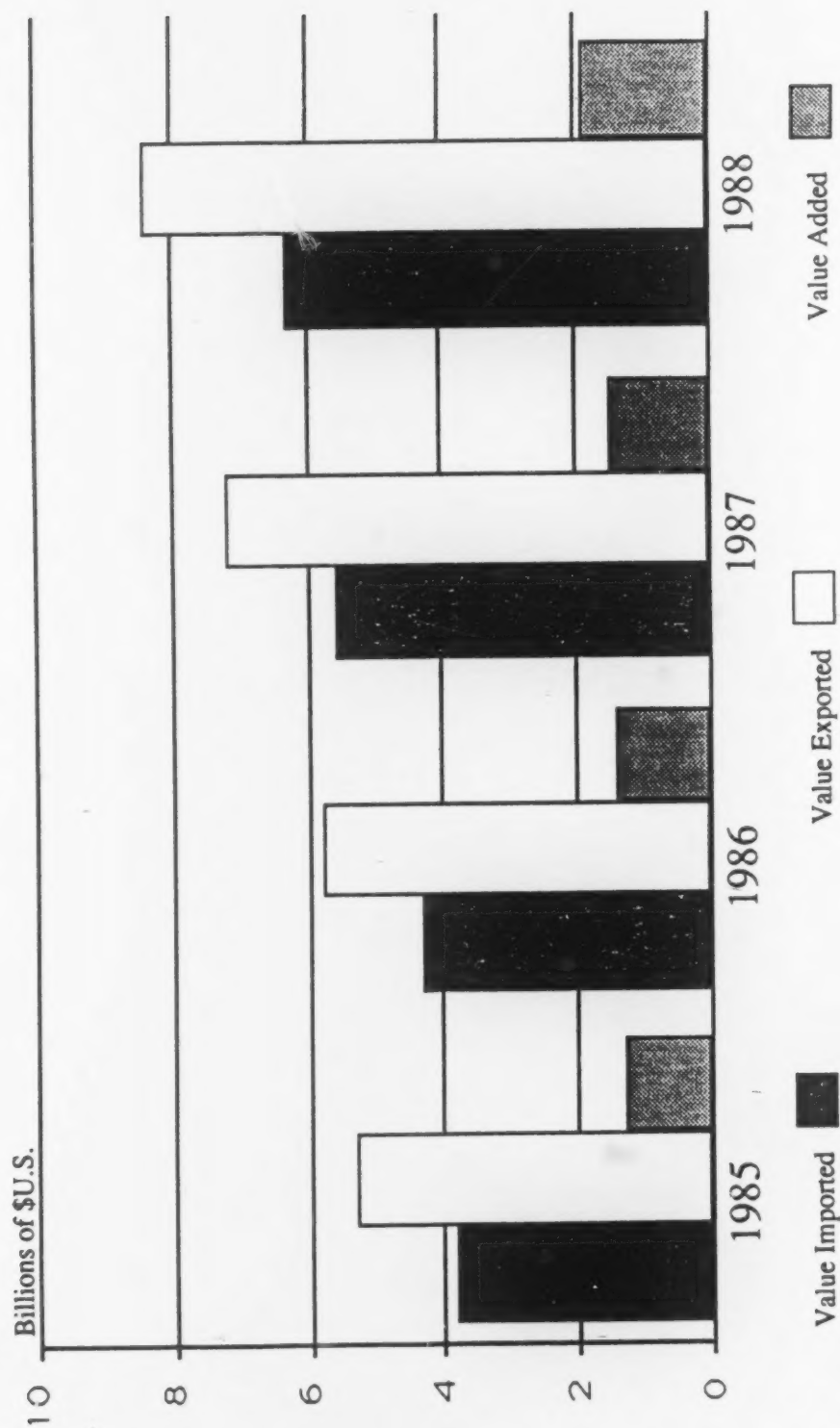
Mexico's 1982 financial crisis was triggered by the combination of economic dependency on oil revenues and a sharp drop in oil prices. Over 70 percent of foreign-exchange earnings at that time came from oil revenues. Mexico has now diversified its exports, particularly in manufactured goods. Mexico now exports electrical machinery, engines and other automotive parts, data processing equipment, nonferrous metals and many other products to the United States. (The maquiladora trade has furthered this diversification.)

In August 1986, Mexico joined the General Agreement on Tariffs and Trade (GATT) and has since eliminated most requirements for import licenses and sharply decreased tariff rates. Mexican officials sought to expand exports by forcing Mexican companies to compete at home and on the foreign market.

Figure 2.3 illustrates the tremendous amount of U.S. Trade with Mexico. Since the debt crisis in 1982, Mexico has enjoyed a surplus in bilateral trade. In 1988, this surplus was \$3 billion.

The United States uses many trade-regulation devices and programs on the national level. Mexican concerns about U.S. trade policy include quantitative restraints on items such as steel and textiles, U.S. tariffs on agricultural products, and removal of preferential treatment under the U.S. General System of Preferences. U.S. concerns are even more basic, relating to the pace of Mexican economic recovery. Table 2.3 shows how U.S. imports from Mexico are broken down into commodity groups, and the value of the imports in each of these groups in 1988. However, programs also operate at the state (e.g., Texas/Mexico trade) and local levels, which affect primarily the border area.

**Figure 2.2**  
**Values Imported, Exported, and Added**  
**By Maquiladora Industry, 1985-1988**



Source: Banco de México, Indicadores Económicos, Feb. 1989  
 Note: 1988 data is for January to October only

**Table 2.2**  
**Mexico's Maquiladora Industry**  
**(principal cities by number of plants)**

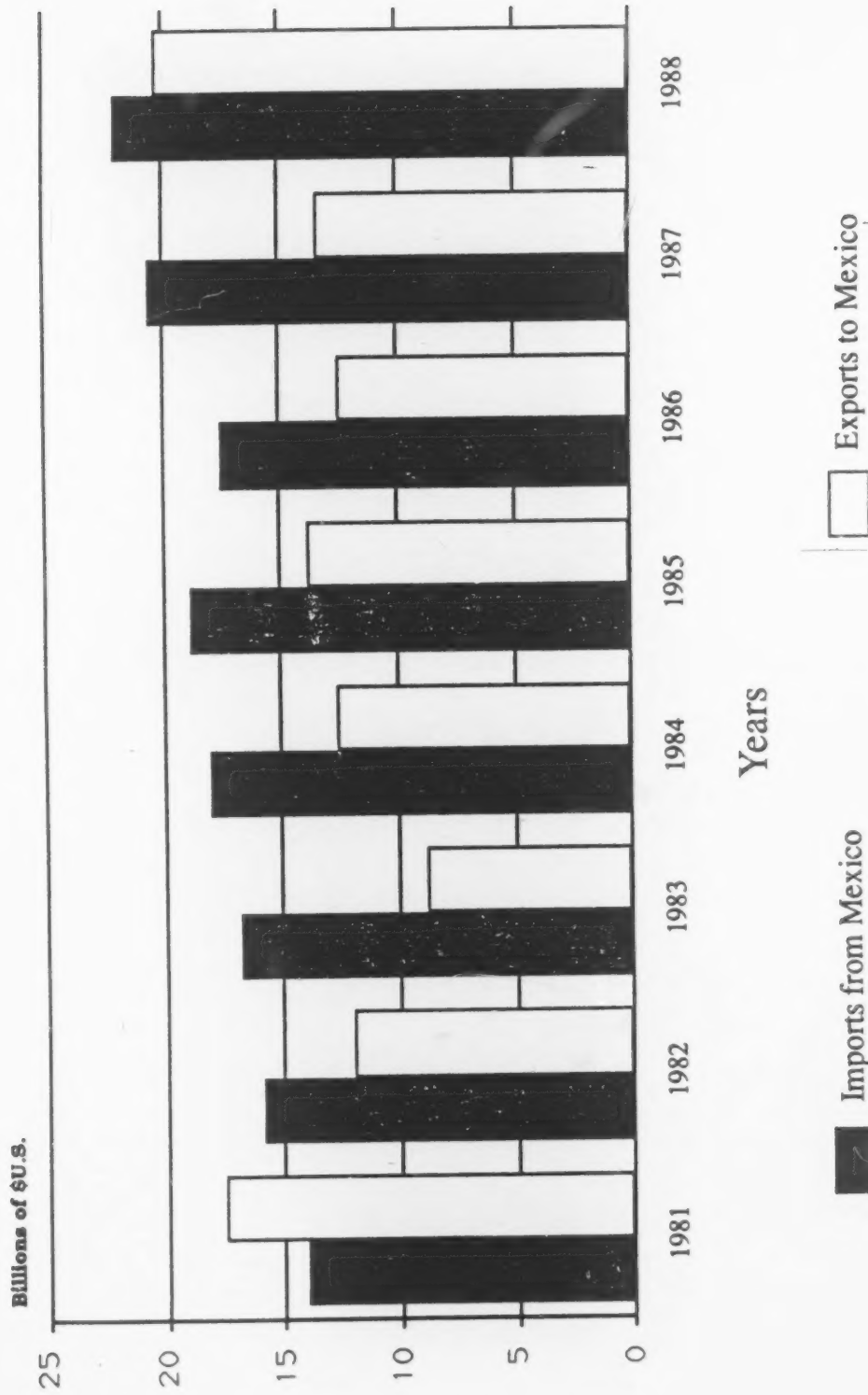
|                | June 1986 |          | June 1987 |          | June 1988 |          | June 1989 |          |
|----------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
|                | <u>P</u>  | <u>E</u> | <u>P</u>  | <u>E</u> | <u>P</u>  | <u>E</u> | <u>P</u>  | <u>E</u> |
| Ciudad Juarez  | 180       | ***      | 192       | 95.3     | 252       | 111.1    | 251       | 123.0    |
|                | 21        | ***      | 25        | 9.4      | 37        | 10.3     | 36        | 12.7     |
| Piedras Negras | 23        | ***      | 33        | 6.4      | 45        | 10.3     | 59        | 14.4     |
| Nuevo Laredo   | 29        | ***      | 36        | 16.9     | 37        | 18.7     | 57        | 24.3     |
|                | 43        | ***      | 58        | 26.7     | 68        | 31.4     | 89        | 37.7     |
| Reynosa        | ***       | ***      | 54        | 30.6     | 49        | 28.0     | 54        | 30.1     |
| Matamoros      |           |          |           |          |           |          |           |          |
| Chihuahua      |           |          |           |          |           |          |           |          |

Source: Secretariat of Programming and Budget, Instituto Nacional de Estadística, Geographica, e Informatica (I.N.E.G.I.)

P=Plants

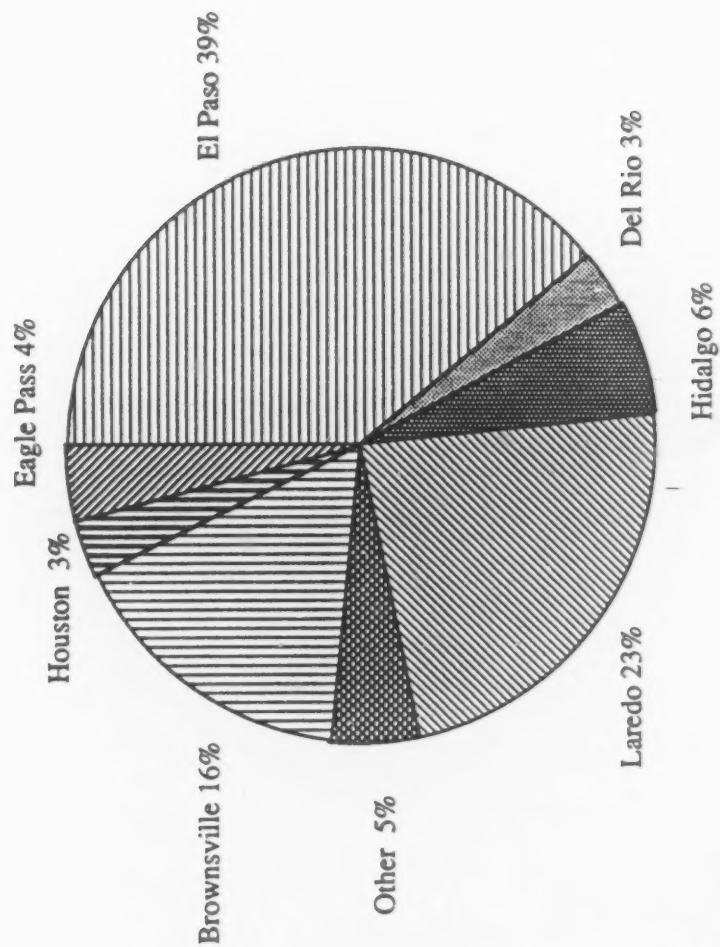
E=Employees (in 1,000s)

Figure 2.3  
U.S. Trade with Mexico, 1981-1988



Source: U.S. Department of Commerce, Bureau of the Census

**Figure 2.4**  
**1987 Texas Exports to Mexico**  
**by Port of Exit**



Source: Texas Department of Commerce

Note: Houston figures include exports for both the Port of Houston and the Port of Houston International Airport



Table 2.3  
U.S. Imports from Mexico under HTS  
Subheading 9802.00.60, by Commodity Groups, 1988  
(in thousands of dollars)

| <u>Commodity group</u>                                             | <u>Total<br/>Value</u> | <u>Duty-free<br/>Value</u> | <u>Dutiable<br/>Value</u> |
|--------------------------------------------------------------------|------------------------|----------------------------|---------------------------|
| Agricultural, animal<br>and vegetable products                     | 0                      | 0                          | 0                         |
| Forest products                                                    | 0                      | 0                          | 0                         |
| Textiles, apparel, and<br>footwear                                 | 0                      | 0                          | 0                         |
| Chemicals, coal, petroleum,<br>natural gas and related<br>products | 7                      | 4                          | 2                         |
| Minerals and metals                                                | 72,605                 | 54,388                     | 18,217                    |
| Machinery and equipment                                            | 27,266                 | 22,233                     | 5,033                     |
| Miscellaneous<br>manufactures                                      | 31,158                 | 27,285                     | 3,874                     |
| Grand total                                                        | 131,035                | 103,910                    | 27,125                    |

Source: U.S. International Trade Commission, Production Sharing: U.S. Imports under Harmonized Tariff Schedule Subheadings 9802.00.60 and 9802.00.80, 1985-1988, publ. 2243 (Washington, D.C., 1989), p. B-25.

Note: Because of rounding, figures may not add up to totals shown.

## THE BORDER POPULATION AND LABOR FORCE

The potential for economic growth in the border region is substantial. The Texas side has many resources. Land and labor are available at relatively low cost, making operating costs lower than in many other areas of the country. Wages on the Mexican side are not low by Mexican standards but are low relative to those in the United States. However, an inadequate Mexican infrastructure is a deterrent to growth on both sides of the border.

Table 2.4 shows the population of the border counties for 1980 and 1984 as well as projections for 1990 and 2000. From 1980 to 2000, the population of the border counties is expected to increase by about 65 percent, to a little over 6.5 million. This is much faster than predictions for the Texas population and for that of the United States, which are 40 percent and 18 percent, respectively.

The population on the Mexican side of the border is growing at an even higher rate. Job opportunities in the region have led many people to migrate from elsewhere in Mexico. Young men and women of working age are the principal migrant groups coming to the area in search of work. Mexico's high birth rate and increased life expectancies have bolstered this population explosion. Demographic projections for 2010 make it unlikely that Mexico as a whole will be able to absorb the large increase into its work force. To add further to the population concentration along the border, illegal immigrants caught in the U.S. are usually deported to places along the border.

In 1989, Mexico's population was 83.5 million people. Of the 26.3 million people in the work force, 57.4 percent were employed in services and agriculture. The transportation and construction industries employ an additional 14.6 percent. Disproportionately more women are found in the border region than in the country as a whole, because of the gender composition of the maquiladora work force.

Table 2.5 shows that weekly wage rates on the Texas side of the border vary from around \$220.00 in Starr county to \$408.00 in Culberson county. The average for all the border counties is \$280.00, around \$7.00/hour for a 40-hour work week. This is much lower than the state average, around \$420.00, or just over \$10.00/hour.

Wage rates on the Mexican side are considerably lower. Table 2.6 shows maquiladora industrial statistics for the state of Tamaulipas. Minimum wages for the state are \$1.28/hour for jobs without fringe benefits and about \$0.79/hour for jobs with fringe benefits. The wage rates are higher for jobs without fringe benefits because the employees do not receive any benefits. The lower wage rate for jobs with fringe benefits does not include the value of the benefits. The average wages for maquiladora operators are slightly higher, at \$1.81/hour and \$1.12/hour, while those for production supervisors are almost comparable to those on the U.S. side, \$5.23/hour and \$3.88/hour.

Unemployment on the Texas side of the border is relatively high. Table 2.7 shows the labor force and unemployment rates for each of the Texas border counties for 1984 and August 1989. During this five-year period, the average for all counties decreased slightly from around 13 percent to almost 11.5 percent. The averages for the primary cities in these counties were slightly higher at 14 percent in August 1989. Exact figures were unavailable for the Mexican border states.

## INFRASTRUCTURE

The growth which has occurred in the border region over the past decade has outpaced investment in the area's supporting infrastructure. Border area expansion has aggravated shortages of adequate housing, water resources, and health facilities.

**Table 2.4**  
**Population in the Border Counties: 1980, 1984, 1990 and 2000**

|                 | <u>1980</u> | <u>1984</u> | <u>1990</u> | <u>2000</u> |
|-----------------|-------------|-------------|-------------|-------------|
| El Paso         | 479,899     | 526,500     | 613,410     | 757,940     |
| Hudspeth        | 2,728       | 2,600       | 2,970       | 3,300       |
| Culberson       | 3,315       | 3,500       | 3,510       | 4,010       |
| Jeff Davis      | 1,647       | 1,700       | 1,650       | 1,790       |
| Presidio        | 5,188       | 5,400       | 5,260       | 5,620       |
| Brewster        | 7,573       | 8,100       | 8,240       | 9,400       |
| Terrell         | 1,595       | 1,500       | 1,530       | 1,600       |
| Val Verde       | 35,910      | 40,200      | 45,850      | 55,620      |
| Kinney          | 2,279       | 2,400       | 2,340       | 2,470       |
| Maverick        | 31,398      | 35,400      | 45,440      | 59,270      |
| Dimmit          | 11,367      | 11,900      | 14,080      | 16,660      |
| Webb            | 99,258      | 118,200     | 130,540     | 157,680     |
| Zapata          | 6,628       | 8,000       | 9,970       | 13,190      |
| Starr           | 27,266      | 35,200      | 37,630      | 46,230      |
| Hidalgo         | 283,323     | 337,100     | 390,100     | 481,510     |
| Cameron         | 209,727     | 241,100     | 276,260     | 333,480     |
| Border Counties | 1,209,101   | 1,378,800   | 1,588,780   | 1,949,770   |
| Texas           | 14,227,000  | 15,989,000  | 17,388,000  | 20,030,000  |
| Border States   | 41,918,000  | 46,088,000  | 50,349,000  | 56,882,000  |
| U.S.A.          | 226,546,000 | 236,681,000 | 249,657,000 | 267,955,000 |

Source: Figures for 1980 and 1984 from the U.S. Bureau of the Census. Estimates for 1990 and 2000 from the National Planning Association.

Table 2.5  
Average Weekly Wage and Total Payrolls for the  
Fourth Quarter of 1988

| <u>County</u> | <u>Average Weekly Wage (\$)</u> | <u>Total Wages (\$)</u> |
|---------------|---------------------------------|-------------------------|
| El Paso       | 327.08                          | 703,694,779             |
| Hudspeth      | 305.91                          | 2,838,451               |
| Culberson     | 407.18                          | 7,289,030               |
| Jeff Davis    | 271.82                          | 1,600,793               |
| Presidio      | 247.62                          | 3,328,518               |
| Brewster      | 254.98                          | 9,125,711               |
| Terrell       | 289.89                          | 1,205,957               |
| Val Verde     | 283.48                          | 28,211,281              |
| Kinney        | 230.94                          | 1,576,191               |
| Maverick      | 246.49                          | 23,155,148              |
| Webb          | 289.54                          | 144,884,240             |
| Zapata        | 258.72                          | 4,621,327               |
| Starr         | 221.55                          | 17,589,235              |
| Hidalgo       | 257.92                          | 356,839,030             |
| Cameron       | 286.18                          | 257,525,506             |
| <br>Texas     | <br>421.38                      |                         |

Source: Texas Employment Commission, Covered Employment and County, 4th Quarter 1989, p. 6-11.

**Table 2.6**  
**Maquiladora Industrial Statistics: Tamaulipas**  
 (including Nuevo Laredo, Reynosa, Matamoros, Ciudad Victoria and Rio Bravo)

|                          | <u>December 1988</u> | <u>December 1989</u> |
|--------------------------|----------------------|----------------------|
| Manufacturing Plants     | 157                  | 222                  |
| Employees                | 61,520               | 75,621               |
| Industrial Parks         | 11                   | 23                   |
| # of Plants              | 62                   | 87                   |
| # of Employees           | 32,600               | 45,200               |
| Parks under Construction | ***                  | 3                    |
| Plants for sale/lease    | ***                  | 12                   |
| Total sq. feet           | ***                  | 1,200,000            |

|                            | <u>Wage Rates</u>              |                             |
|----------------------------|--------------------------------|-----------------------------|
|                            | <u>Without Fringe Benefits</u> | <u>With Fringe Benefits</u> |
| Minimum wage (\$/hour)     | 0.79                           | 1.28                        |
| Average wage(\$/hour)      |                                |                             |
| Operator                   | 1.12                           | 1.81                        |
| Production Supervisor      | 3.88                           | 5.23                        |
| Accountant                 | 3.88                           | 5.23                        |
| Bilingual Secretary        | 2.45                           | 3.31                        |
| Quality Control Technician | 1.94                           | 2.62                        |

Source: Mexico Close-up, vol. V, no. 250, December 25, 1989, p.6.

\*\*\* = figures not available

**Table 2.7**  
**Labor Force and Unemployment in the Border Counties:**  
**1984 and August 1989**

|            | 1984               |                         | August 1989        |                         |
|------------|--------------------|-------------------------|--------------------|-------------------------|
|            | <u>Labor Force</u> | <u>%<br/>Unemployed</u> | <u>Labor Force</u> | <u>%<br/>Unemployed</u> |
| El Paso    | 202,350            | 9.7                     | 249,899            | 10.6                    |
| Hudspeth   | 1,083              | 1.8                     | 1,333              | 4.9                     |
| Culberson  | 1,687              | 5.6                     | 1,781              | 7.0                     |
| Jeff Davis | 976                | 4.5                     | 858                | 2.4                     |
| Presidio   | 1,934              | 13.6                    | 2,616              | 12.0                    |
| Brewster   | 3,969              | 4.0                     | 3,869              | 4.4                     |
| Terrell    | 790                | 5.6                     | 948                | 2.7                     |
| Val Verde  | 12,116             | 13.1                    | 13,264             | 12.4                    |
| Kinney     | 983                | 4.3                     | 11,844             | 13.5                    |
| Maverick   | 10,224             | 28.4                    | 12,814             | 26.5                    |
| Dimmit     | 5,350              | 14.3                    | 4,708              | 13.6                    |
| Webb       | 39,432             | 17.2                    | 49,559             | 11.9                    |
| Zapata     | 3,407              | 11.7                    | 3,400              | 12.9                    |
| Starr      | 11,590             | 37.6                    | 13,313             | 25.7                    |
| Hidalgo    | 118,251            | 21.1                    | 152,330            | 17.7                    |
| Cameron    | 94,412             | 13.1                    | 103,929            | 13.2                    |

Source: Bureau of Economic Analysis, Texas Employment Commission



The inadequate infrastructure limits the efficiency of trade. The primary cause of these problems is the extraordinary population growth on the Mexican side, coupled with funding shortages. Housing is perhaps the most serious problem. Housing is so scarce on the border that many who relocate to seek work in maquiladora plants often pay half of their salary for rent. To keep up with the population boom, 60 thousand additional housing units per year are needed in the Mexican border area.<sup>8</sup>

The inadequate infrastructure has also contributed to environmental degradation. Inadequate sewage treatment is a major health hazard. Nuevo Laredo has no wastewater treatment facilities for its population of 400 thousand; the wastewater simply discharges into the Rio Grande. In 1989, the U.S. and Mexican governments, along with the state of Texas, agreed to a plan providing funds to construct a sewage treatment plant there.<sup>9</sup>

Improvement in the infrastructure on the Mexican side of the border depends on financing, mostly from the centralized Mexican government. Texas Senate Resolution No. 699 recognizes that rapid border growth has placed "new and accelerated pressures on Mexico border infrastructure," and has resolved to further investigate the matter.

Several projects are being planned to improve the border's infrastructure. These include plans to build industrial towns, hydroelectric power dams, and a transborder gas pipeline. Financing mechanisms under consideration to make infrastructure improvements include debt-equity swaps, public/private sector cooperation, and foreign investment. It is clear that the lack of urban infrastructure is a key bottleneck to an expanding border economy.

In May 1989, the Mexican government issued new rules for foreign investment in Mexico, which may affect the population concentration along the border. Prior to these new regulations, the general rule was that no more than 49 percent of a Mexican corporation could be owned by foreigners. This limitation did not apply to maquiladoras, of which 100-percent foreign ownership is the norm. Procedures were eased to permit foreigners to own up to 100 percent of a nonmaquiladora business under the new regulation.<sup>10</sup> As part of the change, "investors will be able to choose the export program most advantageous to [them] from the following four alternative programs: (a) maquiladora program; (b) temporary import/export program; (c) PITEX (temporary importation for later exportation program); (d) ALTEX (highly active exporters program)."<sup>11</sup> Previously, the maquiladora program was the only special program available for export operations in Mexico.<sup>12</sup>

The state of Texas has also been working to make investment in Mexico easier. Since June 14, 1989, maquiladora operators no longer have to file for sales tax exemption after each purchase of goods to be exported to Mexico. The new law requires the operators to file only one application good for automatic exemptions on all purchases of these goods.<sup>13</sup>

## Notes

1. From west to east, the 16 Texas counties are El Paso, Hudspeth, Culberson, Jeff Davis, Presidio, Brewster, Terrell, Val Verde, Kinney, Maverick, Dimmit, Webb, Zapata, Starr, Hidalgo, and Cameron.
2. From west to east, the four Mexican states are Chihuahua, Coahuila, Nuevo Leon, and Tamaulipas.
3. Refugio I. Rochin, Mexico's Agriculture along the U.S. Border: Problems and Prospects (El Paso: University of Texas at El Paso, Center for Inter-American and Border Studies, March 1985), p. 8.
4. Elsie Echevein-Carroll, Maquilas: Economic Impacts and Foreign Investment Opportunities. Japanese Maquilas - A Special Case (Austin: Bureau of Business Research, The University of Texas at Austin, 1988), p. 2.
5. John Boyd, "Soaring Imports from U.S. Slash Mexican Surplus," Journal of Commerce and Commercial, vol. 379, no. 26 (January 25, 1989), p. 1A (2).
6. U.S. Department of Commerce, Bureau of the Census, as cited in "United States-Mexico Economic Relations," hearings before the Subcommittee on Economic Resources and Competitiveness of the Joint Economic Committee, 100th Congress, first session, June 1987, 12-13, 1987, p. 168; and U.S. Department of Commerce and U.S. Foreign Commercial Service as cited in Laredo Development Foundation (LDF), 1986-1988. The Impact of Maquiladoras and Mexican Trade on Laredo Truck Traffic.
7. Ibid.
8. U.C.L.A. Program on Mexico, "Housing on the U.S.-Mexico Border," (report presented at Texas/Mexico Authority and Bi-State Regional Commissions Meeting, Austin, Texas, November 13, 1989), p. 51.
9. "Rio Grande Clean-up Funds are Approved," Brownsville Herald (September 13, 1989); and U.C.L.A. Program on Mexico, "Housing on the U.S.-Mexico Border," p. 68.
10. "Foreign Investment Rules," Maquilmex Briefs, vol. 1, no. 1 (June 1989), p.1.
11. Ibid., p. 2.
12. "PITEX and ALTEX Programs," Maquilmex Briefs, vol. 1, no. 2 (July 1989), p. 2.
13. "Texas Sales Tax Exemption," Maquilmex Briefs, vol. 1, no. 3 (September 1989), p. 1.

## Chapter 3. Texas-Mexico Transborder Transportation System

### INTRODUCTION

This chapter provides an overview of the transborder transportation system in terms of its component modal operations (motor carriers, rail, air, and ocean transport) and its supporting infrastructure (highways and bridges, rail terminals and track, airports, and seaports). Although specific attention is paid to the Texas-Mexican portion of the 1,200-mile-long binational border, transport activities elsewhere along the border are also discussed when appropriate. Both the condition of the existing transborder transportation system and plans for system expansion and improvements are addressed. Figure 3.1 presents a map of all border states and counties to enable the reader to locate specific transportation projects mentioned in the text. Finally, although the following overview is intended to be comprehensive in nature, transportation statistics were obtained from readily accessible sources of information; the amount of information collected varied by mode of transportation. Appendix D provides detailed statistics for this chapter.

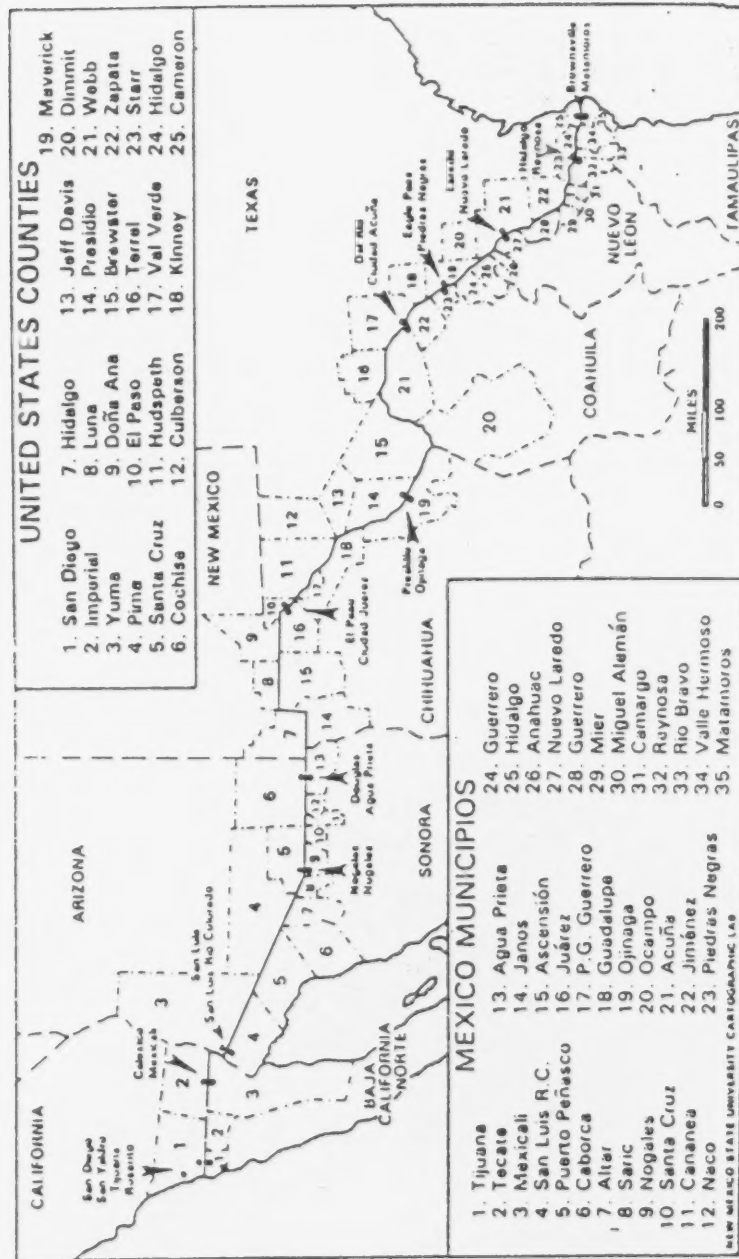
### MOTOR CARRIERS

Transborder commercial motor carriers (trucks) operate through twenty-four international ports of entry, twelve of which are located along the Texas-Mexico border. According to the U.S. General Services Administration, for fiscal year October 1989-September 1990, the total number of northbound commercial vehicles crossing at the twelve Texas-Mexico ports of entry was 897,718: Hidalgo/Reynosa, 125,623; Rio Grande City/Camargo, 10,527; Roma/Ciudad Miguel Aleman, 28,351; Laredo/Nuevo Laredo, 322,347; Eagle Pass/Piedras Negras, 36,827; Del Rio/Ciudad Acuña, 18,070; Presidio/Ojinaga, 6,458; Fort Hancock and Fabens/Porvenir, 4,006; El Paso/Ciudad Juarez, 182,303; Brownsville/Matamoros, 142,492; Progreso/Nuevo Progreso, 20,714.<sup>1</sup>

These commercial vehicles comprise a mixture of for-hire motor carriers (common or contract) and private motor carriers, each of which may haul exempt and nonexempt products and may be domiciled in either the U.S. or Mexico. Cross-border truck traffic also may be distinguished according to type of cartage: main line (long haul) and shuttle (short haul/local cartage). Indeed, the role of Mexican shuttle carriers has been critical to the flow of transborder commerce. With few exceptions, Mexican shuttle carriers transship the great majority of all for-hire shipments through ports of entry. The same applies to most private shipments, especially those owned by U.S. firms; approximately 90 percent of maquiladora production crosses the border aboard Mexican shuttle carriers. On the other hand, Mexican private carriers dominate the carriage of exempt products, most of which entail the delivery of agricultural products to the U.S.<sup>2</sup> Beyond these generalizations, the nature of transborder motor carrier commerce tends to be governed by evolving binational regulatory frameworks (see Chapter 4) and tends to vary according to arrangements established by various border communities.

Laredo/Nuevo Laredo is the busiest port for transborder commercial truck traffic. Over 50 percent of land-hauled merchandise traffic between the United States and Mexico passes through Laredo.<sup>3</sup> In 1988, Laredo accounted for 39.9 percent of truck shipments to Mexico through Texas. Traffic for finished goods is the main cargo, accounting for 90 percent of the volume. The other 10 percent is related to maquiladoras and consists of raw materials into Mexico and finished and intermediate goods back to the U.S. Traffic estimates vary from 600 trailer loads a day to as many as 1,000 per day.<sup>4</sup> By the late 1990s, volume may reach 1,500 per day.<sup>5</sup> Access arrangements are unique in Laredo. Through private agreements concluded by U.S. and Mexican trucking interests, Mexican trucks have the exclusive right to haul Mexican cargo into Laredo, and U.S. trucks have the right to haul American cargo into Nuevo Laredo. Both U.S. and Mexican trucks must return without a load or with an empty trailer.

Figure 3.1 The Mexico-United States Border States and Counties



Source: The Journal of Borderland Studies (Las Cruces, New Mexico: New Mexico State University, October 1986), vol. I, no. 1.



Another major land port of entry is El Paso/Ciudad Juarez. This port is a major maquiladora border crossing point, with some 200 maquiladora plants located on the Mexican side of the border. Approximately 500 trucks enter the U.S. from Ciudad Juarez each day. Maquiladora traffic accounts for 90 percent of the total volume (unlike Laredo), carried mostly by Mexican trucks and drivers.<sup>6</sup> Most maquiladoras have contracted out to independent Mexican trucking companies.

Finally, in Eagle Pass/Piedras Negras, transborder carriage is handled mainly by U.S. for-hire carriers. Since the local Mexican trucking union has obtained tractors only recently, U.S. for-hire carriers dominate the transshipment of commerce into and out of Piedras Negras.<sup>7</sup>

## HIGHWAYS

The following overview of the highway infrastructure on both sides of the United States-Mexico border is limited to those road networks which either do or could contribute significantly to the flow of goods between both countries. As the volume of bilateral trade increases with the proliferation of maquiladora operations, an efficient network of roads to facilitate the transportation of goods becomes ever more important. Both the condition of existing networks and plans for network expansion will be addressed. For purposes of this section, bridges and overpasses are considered part of this network.

### Mexico

On the Mexican side, recent developments signal the onset of government-private sector cooperation in the construction and financing of highways and bridges. The Mexican government has granted the private sector a role in these projects in an effort to stimulate the economy and provide the necessary infrastructure. So far, such agreements would allow Mexican firms and foreign investors to finance projects and collect user fees for periods up to 25 years. After the specified period, the project would then revert back to the Mexican government.

In Monterrey, one such project involves the construction of a four-lane highway from Monterrey, Nuevo León, to Laredo, Texas. Bids were solicited from various large private Monterrey construction firms. The proposed highway will provide a modern and direct link between one of Mexico's main industrial centers and the Texas border that will save considerable travel time. The cost of the 140-mile road is currently estimated at over \$100 million. The investors have the right to operate the highway for a period of about 10 years. After that, the property and the control of the highway will revert back to the state government.<sup>8</sup>

Several articles have recently described some of the highway projects that the Mexican government has either undertaken or is planning to undertake in the near future. The Secretaría de Comunicaciones y Transportes' (SCT) 1990 National Work Plan documents most of the federal government's intended 1990 expenditures for highway construction and proposed road routes.<sup>9</sup> Over \$530 million were budgeted for highway infrastructure expenditures.<sup>10</sup>

The Mexican government will continue to provide maintenance and finish pending projects on a priority basis. SCT is continuing with a plan to modernize some 144,000 miles of public highways. The modernization projects include private participation. Nationally, 150 bridges and 190 rest stop areas are being reconstructed to serve motorists, tourists, and truckers.<sup>11</sup>

In the state of Chihuahua, plans exist to construct a fourth lane along a stretch of highway between El Sueco and Ciudad Juarez, which will complete 175 miles of four-lane highway between Chihuahua and Ciudad Juarez. In 1989, twelve highway projects were authorized totaling 616 miles of new highways and bridges. Financing is slated to come from both private banks and corporations. The Mexican government appears likely to continue tapping into the private sector to finance additional highway construction.

Besides the Monterrey/Nuevo Laredo tract and the Ciudad Juarez/El Sueco tract, there is also a border highway construction project taking place at Tijuana/Tecate/Mexicali. There are numerous other highway projects taking place in the interior areas of Mexico (see Chapter 6).

### United States

Texas. The Texas Department of Commerce published a report on transportation infrastructure priorities in Texas and four Mexican border states.<sup>12</sup> The report notes that the (Texas) State Department of Highways and Public Transportation (SDHPT) is studying the feasibility of upgrading and/or constructing new highways connecting Brownsville and Fort Stockton. The report also notes that the department is examining the roadway linking Laredo and Corpus Christi. The latter route serves as a better link between the proposed highway from Monterrey and a Texas seaport.<sup>13</sup>

Various highway projects are currently planned or are under construction along the Texas side of the U.S.-Mexico border. The most activity in Texas appears to be in the area between Brownsville and Laredo. The projects are discussed below according to county.

According to a transportation planner at the district 21 office of SDHPT, a feasibility study is being conducted involving the construction of an outer loop for the city of Laredo, in Webb County. Currently, crosstown traffic must utilize downtown city streets, causing considerable problems. The proposed loop would alleviate this congestion.<sup>14</sup>

In Hidalgo County, the extension of U.S. 83 by 15 miles to the west of Mission is under study and, in adjacent Starr County, the SDHPT is considering the expansion of U.S. 83 into a divided highway from the Hidalgo-Starr county line to Rio Grande City. Presently, the stretch of U.S. 83 along this section is a two-lane highway and is heavily travelled. Problems in acquiring right-of-way are anticipated because much of the residential development has taken place close to the current boundaries of the existing highway.<sup>15</sup> Also on U.S. 83, the creation of one-way traffic routes through the city of Roma is contemplated. Currently, traffic is routed through the center of town on the same two-lane highway.<sup>16</sup>

In Brooks County, plans exist to continue the expansion of U.S. 281 from a two-lane highway to a divided highway reaching the city of Falfurrias. U.S. 281 is the major link for traffic north from the McAllen, Texas/Reynosa, Tamaulipas area. A 14-mile section of divided highway was added to U.S. 281 in 1989. It is envisioned that the entire highway from Edinburg to the intersection with U.S. Interstate 37, 60 miles south of San Antonio, will eventually be completed.<sup>17</sup>

In Cameron County, proposed projects include the extension of U.S. 77-U.S. 83 to the new location of the proposed international bridge south of Brownsville. Officials forecast the bridge and highway link will be completed in five-to-six years.<sup>18</sup> Also in Cameron County, a feasibility study is being conducted for an eastern loop around the city of Harlingen. The study is looking at the possibility of extending a loop from U.S. 77, north of the city, to U.S. 77-U.S. 83 midway between San Benito and Harlingen.<sup>19</sup>

Two planned interchanges for the two major highways that run into the Lower Rio Grande Valley are "in the mill," according to SDHPT officials. The U.S. 281 and U.S. 83 intersection in Pharr and the U.S. 83 and U.S. 77 intersection in Harlingen are the two points at which the state will construct direct interchange lanes for traffic.<sup>20</sup>

SDHPT's south Texas district spends between \$10 and \$12 million annually for rehabilitation and widening of roads and highways that serve the various border cities in the Lower Rio Grande Valley. Spending is primarily aimed at upgrading substandard roads to current safety requirements.<sup>21</sup>



Infrastructure development along the border for the districts west of Laredo is much more limited than in the southern region of Texas because of fewer highways and border crossing points. The only plan for construction is in Del Rio, where plans exist to upgrade U.S. 277 from a two-lane to a four-lane highway from the port of entry. Project cost for the 3.2-mile stretch of road is estimated at \$7.5 million. The contract is set for late 1991.<sup>22</sup>

New Mexico. According to officials with the New Mexico Department of Transportation, there is relatively little construction activity planned for the development of transportation infrastructure along the New Mexico-Mexico border. The lack of planned activity is explained by the low amount of trade flowing through the region.<sup>23</sup>

Two projects being considered, however, are the creation of two new border crossings. The U.S. Congress has approved \$10 million for future construction. The border crossing points would be at Sun Land Park and at Santa Teresa. Both points would be just west of El Paso, Texas, and the Mexican city of Juarez, Chihuahua. Officials believe the proposed entry points will shift some of the traffic and trade over to less congested areas.<sup>24</sup>

Arizona. An official with the Arizona Department of Transportation indicated that there are no major projects or programs contemplated for the expansion of the existing transportation routes into Mexico. Projects noted below are the result of routine expansion.<sup>25</sup>

At the San Luis border entry point, a road from the entry point to a state highway has now been completed. At the Nogales entry point, increased traffic has necessitated some expansion. Officials at the entry point are considering improvements to State Route 181 as a means of alleviating congestion. The Nogales entry point is known as the chief port of entry for Mexican agricultural products heading to U.S. markets.<sup>26</sup>

The official described the work at three other ports of entry as routine. The only commercial ports of entry in Arizona are at the Nogales and San Luis, where most major improvements are planned for the future. The transportation department has been asked to expand a road up to four lanes that would lead into a commercial port of entry at San Luis. A second port of entry at San Luis is planned exclusively for noncommercial traffic.<sup>27</sup>

California. A number of California projects are planned to aid the growth in commercial and noncommercial traffic along the main ports of entry. An official with the California Department of Transportation noted that his department is barely able to keep pace with the congestion problems caused by growth along the border. In addition, population growth and residential development place limits on the amount of transportation infrastructure development that can be accomplished.

The five major ports of entry along the California border are located at San Ysidro, Otay Mesa, Tecate, Calexico, and Algodones. The main crossing point for traffic entering the U.S. is San Diego/San Ysidro. On average, over one million vehicles cross through the entry point each month. The two major transportation routes that lead to the port of entry are U.S. Interstate 5 and Interstate 805. Because expansion is limited at this crossing, plans are to shift all commercial traffic over to the Otay Mesa international border crossing a few miles east of the San Ysidro entry point. A proposed third border crossing point in the San Diego area would be at a location west of San Ysidro.<sup>28</sup>

In order to develop the commercial entry point at Otay Mesa, state routes 905 and 125 will have to expand to connect the entry point to the existing major road systems that serve the southern California area. The area around Otay Mesa is reported to have the potential for \$21 billion worth of development, as well as to generate \$15.7 billion in annual production and 140,000 jobs. To accommodate this growth, long-range infrastructure studies are required of government and transportation officials.<sup>29</sup> The next busiest port of entry in California is Calexico, through which most agricultural products are imported into California. The plans for

the crossing point at Calexico call for increasing its size from four lanes to twelve lanes.<sup>30</sup>

Two other ports of entry are at Tecate and at Algodones. No plans for expansion or improvements are being considered for these ports of entry because of low traffic volume.<sup>31</sup> The U.S. Congress has allocated funds for the various port of entry projects in California as follows:<sup>32</sup>

1. \$2 million for design and construction of a commercial inspection facility at Otay Mesa commercial crossing
2. \$4 million for improvements at the Calexico border station
3. \$3.3 million for improvements at San Ysidro border crossings

The funding bill also included authorization for the U.S. Customs Service and U.S. General Services Administration to conduct a needs study on whether the federal government should build the third border crossing point west of San Ysidro.<sup>33</sup>

### International Bridges

Each international bridge built along the border is a considerable source of tourism and trade. For this reason, communities frequently request bridge construction in their area. Those cities that contribute to bridge construction near their cities often see the investment pay for itself in a matter of years. In addition, U.S. and Mexican officials are eager to alleviate some of the bottlenecks at the border because companies can face delays of up to a day because of too few crossing points.

Currently, bridges are located at the following cities:

**Table 3.1**  
**International Bridges**

#### Texas

Brownsville  
Progress  
Hidalgo  
Rio Grande City  
Roma  
Laredo

Eagle Pass  
Del Rio  
Presidio  
Fort Hancock  
Fabens  
El Paso

#### New Mexico

Columbus  
Antelope Wells

#### Arizona

Douglas  
Naco  
Nogales  
Sasabe  
Lukeville

#### California

Algodones  
Calexico  
Tecate  
San Diego

However, delays abound in the planning and construction of international bridges. First, both countries must negotiate agreements allowing for construction--a process which can take years. To expedite the process, the Salinas administration has granted many states greater autonomy over decisions regarding bridge construction. A second delay in the construction of bridges is the lack of sufficient Mexican capital to finance construction. Often many of the communities and county governments on the U.S. side of a proposed bridge must wait years for the approval of financing by their Mexican counterparts. Thus, ventures between the Mexican government and private investors have been proposed for bridges.

The main infrastructure development project in the entire region is the new Colombia bridge linking Dolores, Texas, and Colombia, Nuevo Leon. The bridge, located west of Laredo in Webb County, is expected to reduce heavy truck traffic on the two city-owned bridges connecting Laredo/Nuevo Laredo. Groundbreaking ceremonies took place on March 30, 1991, and the Colombia bridge has been open to traffic since August 1, 1991.<sup>34</sup>

The Zaragoza bridge (a new replacement bridge) near El Paso/Ciudad Juarez also is now open to traffic for travel between Ysleta, Texas, and Zaragoza, Chihuahua. This new bridge is intended to relieve some of the congestion on the El Paso bridges that has created a bottleneck to moving products quickly out of maquiladora plants in Mexico.<sup>35</sup>

A third bridge (often called Matamoros III) between Brownsville, Texas, and Matamoros, Tamaulipas, is currently under construction. Moreover, the proposed bridge connecting Los Indios, Texas, and Lucio Blanco, Tamaulipas, has received a presidential permit and has gone to contract. This construction project, first proposed in 1968, is located halfway between Brownsville/Matamoros and Hidalgo/Reynosa and will link Reynosa, Rio Bravo, and Matamoros vehicular traffic with Harlingen, Texas.<sup>36</sup>

## RAIL TRANSPORTATION

### Texas

At the end of 1989, six class 1 railroads operated in Texas: the Atchison, Topeka and Santa Fe (ATSF), the Burlington Northern (BN), the Kansas City Southern (KCS), the Missouri-Kansas-Texas (MKT), the Union Pacific (UP), and the Southern Pacific (SP).<sup>37</sup> These six railroads maintained 11,263 miles of track in Texas. Three railroads, the UP, SP, and ATSF control most of the class 1 track and freight in Texas. The ATSF maintains 3,261 miles of track, while the SP and UP maintain 3,067 and 2,787 miles, respectively.<sup>38</sup> Since 1937, when Texas track mileage reached a peak of 17,078 miles,<sup>39</sup> total operational mileage has steadily decreased. However, total freight tonnage hauled by Texas railroads has continued to grow.

In addition to maintaining the largest rail networks in Texas, the ATSF, UP, and SP also control the five major Texas-Mexico international rail crossings at El Paso/Ciudad Juarez, Presidio/Ojinaga, Eagle Pass/Piedras Negras, Laredo/Nuevo Laredo, and Brownsville/Matamoros. Therefore, this section will focus primarily on their operations and infrastructure.

The El Paso/Ciudad Juarez international rail crossing, which is dominated by Southern Pacific traffic, is a major crossing point for manufactured products, minerals, and food items. The SP maintains a modern intermodal terminal at El Paso, where it interchanges with the Mexican National Railways (Ferrocariles Nacionales de Mexico--FNM). The SP also maintains interchanges with the FNM at Brownsville/Matamoros and at Eagle Pass/Piedras Negras. However, El Paso is the only interchange with intermodal capabilities. The Atchison, Topeka and Santa Fe railroad's primary international crossing is located at Presidio/Ojinaga, but it also transits significant tonnage through El Paso. Farm products, mostly grains, are transported to Mexico through Presidio. There is no terminal at Presidio similar to that in El Paso. Rather, an ATSF locomotive pushes the loaded cars halfway across the international rail bridge, where they wait for the FNM locomotive to hook up and pull the load into Mexico.<sup>40</sup>

The Union Pacific railroad dominates the Laredo/Nuevo Laredo and Brownsville/Matamoros crossings, although the Laredo crossing transits significantly more tonnage. In 1988, 65,811 rail carloads were transported southbound from Laredo to Nuevo Laredo. Union Pacific handled 41,210 of those carloads, while the Texas-Mexican Railroad (a class 2 railroad) handled 24,601. Northbound, only 20,860 carloads were moved from Nuevo Laredo to Laredo.<sup>41</sup> The difference between northbound and southbound 1988 traffic of 44,951 carloads represents those rail cars that backhaul empty.

The U.S. rail industry underwent a difficult period of reorganization and consolidation following deregulation and has not made any recent major investments in new rail lines. In fact, a number of unprofitable lines have been abandoned during the last decade. Most investment has gone into upgrading ramp facilities and terminals so that intermodal transportation can expand. In Texas, Southern Pacific maintains intermodal terminals at Barbours Cut, Dallas, El Paso, Harlingen, Houston, and San Antonio. The SP has also undertaken an ambitious project to expand intermodal service to Mexico along the El Paso/Ciudad Juarez/Chihuahua corridor. This service, which Southern Pacific has named "El Maquilador," enables customers to ship goods directly between the U.S. and the interior of Mexico, specifically the city of Chihuahua, with intermodal flexibility. Furthermore, because of a customs agreement which the SP concluded with Mexico, shipments can be cleared at Chihuahua and thus avoid lengthy border inspections. Southern Pacific claims that this process saves customers one to three days in shipping time.<sup>42</sup> In addition, SP has invested capital and expertise in Mexico by lending the terminal cranes to the FNM and offering technical expertise on intermodal transportation and scheduling. The FNM recently finished construction on a modern intermodal facility at Chihuahua, a major embarking point for beer, automobile parts, tile, paper, bottles, and cement that the SP picks up in El Paso and then transports throughout its U.S. network.

U.S. rail officials describe Mexico as the last large open market available for a significant increase in rail transportation.<sup>43</sup> The fact that U.S. firms are beginning to recognize and take advantage of this opportunity is largely the result of the now common practice of free exchange of rail equipment and cargo between the United States and Mexico. Merchandise can be moved from the U.S. to Mexico, and vice versa, without transferring it from one car to another. Furthermore, trucking and railroads are becoming an integrated unit. Products that can be shipped in bulk, such as minerals, grains, chemicals, steel, and cement, can be moved more competitively by rail than by other means of transport. However, multimodal services, either piggyback or rail containers, can significantly improve the efficiency of rail transportation.

## Mexico

In Mexico, the rail infrastructure and service system is in significantly worse shape than its U.S. counterparts. Rail service in Mexico is a monopoly industry, controlled solely by the FNM. The FNM has not experienced the deregulation and restructuring that U.S. railroads have endured over the last decade. There are very difficult problems to be faced in FNM, as the financial crisis of the early 1980s forced budget restrictions. Also, FNM administrative positions are political appointments, and, in the past, this has caused major decisions on investment and maintenance to be deferred. However, there is some indication that this practice is changing under the Salinas administration.

Aside from certain spurs, notably the Ciudad Juarez/Chihuahua line, much of the infrastructure is in need of modernization. Piggyback and container services are confined to small segments of the system. The piggyback service available out of Matamoros, Nuevo Laredo, and Ciudad Juarez is operating "at least" at full capacity.<sup>44</sup> Rail congestion, caused by grain imports from the United States, also has reduced intermodal service.<sup>45</sup>

The existing infrastructure of the FNM is extensive.<sup>46</sup> There are nearly 16,000 miles of rail line. Less modern, soldered and nailed rail installations make up 62 percent of all lines. This is one area of particular concern, as the increased use of modern rail will save money on future repairs. Thus, money spent on replacing old rail lines with new kinds of track will reduce the expenditure necessary for more continuous upkeep. The rail bedding in Mexico is largely wood. Of the 15,768-mile rail system, 85 percent is held in wood bedding, the remaining 15 percent in cement.



Replacement and construction of new rail lines is a priority of the FNM. Considerable reconstruction of rail took place in 1988, the last year for which figures are available. Completely new rail replaced 397 miles of old track, while reconstructed rail taken from other areas and refurbished replaced another 208 miles. Construction of a new line between Matamoros and Tampico is expected to take place in the next five years. In addition, the construction of a second line between Monterrey and Nuevo Laredo, though currently in the long-term plans, may become more desirable in the near future.

Rail signaling in Mexico has been a problem. Only 540 miles of the entire system is under centralized control. Plans for expansion include 162 additional miles from Monterrey to Nuevo Laredo and, in 1995, the route linking the port city of Tampico to Monterrey will come under centralized control. Ciudad Juarez to Torreon will eventually be included in the system.

Loading areas of particular interest in Mexican-American trade are operating fairly close to capacity, and at fairly slow rates, indicating a need for expansion and reconstruction.

Table 3.2  
Loading Areas in Mexico

| City           | Cars Handled<br>per day | Average Turn-Around<br>time (hrs) | Facility Operating<br>at % Capacity |
|----------------|-------------------------|-----------------------------------|-------------------------------------|
| Ciudad Juarez  | 152                     | 12.2                              | 95.0%                               |
| Chihuahua      | 303                     | 12.2                              | 91.3%                               |
| Matamoros      | 122                     | 17.0                              | 102.0%                              |
| Monterrey      | 1197                    | 16.6                              | 79.6%                               |
| Piedras Negras | 78                      | 14.6                              | 70.7%                               |

The fleet of rail cars in Mexico is made up of 1,374 locomotives, 47,500 cargo cars, and about 1,000 passenger cars. Of the locomotive fleet, over half is more than 10 years old. Repair and rebuilding of the locomotive fleet is therefore also a priority. In 1990, 20 locomotives, 200 cargo cars, and 23 passenger cars were planned for repair and return to service.

The FNM receives an average of over 250 loaded rail cars a day from Texas at its five border crossing points.<sup>47</sup> From the United States into Mexico, FNM transports minerals, grains, basic chemicals, autos, steel, and cement. However, 75 percent of the cars return to the U.S. empty. The remaining 25 percent contain grain, automotive parts, and other various manufactured goods and components.<sup>48</sup> Trains move 100 percent of the steel industry's raw materials, minerals, and inorganic exports. They handle 63 percent of Mexico's wheat and 60 percent of its fertilizer, sugar, sorghum, rice and beans. Rail transports 50 percent of Mexico's cement.<sup>49</sup> Rail traffic includes trailers-on-flat cars (piggyback), tank cars, and container cars that facilitate intermodal service.<sup>50</sup> However, multimodal service is not as fully developed as in the United States.

The 15,768-mile FNM system is divided into 5 regions: the southeast, central, pacific, north, and northeast.<sup>51</sup> The north and the northeast regions border the state of Texas. Eighty percent of the most frequently utilized routes begin from within these two regions.<sup>52</sup> In 1986, FNM's intercity freight market share decreased to 20 percent. Intercity market share is currently running at about 30 percent with a volume of 70 million tons. FNM forecasts expect that this level will rise to 50 percent by 1994.<sup>53</sup> Therefore, the FNM has developed ambitious expansion plans. Without the necessary funding, though, these plans will remain on paper.

One particularly ambitious innovation in rail transportation should also be noted. American President Companies, one of the major U.S. maritime shipping lines, in conjunction

with Southern Pacific, recently committed itself to providing double-stack container service from Detroit to Mexico.<sup>54</sup> This innovation allows containers to be stacked two-high without exceeding the standard clearances allowed in U.S. rail tunnels and bridges. The increase in productivity associated with double-stack service can result in cost savings of over 25 percent.<sup>55</sup> Much of Mexico's rail system is currently unable to handle double-stack service. However, future FNM improvements will address this problem.<sup>56</sup>

## OCEAN SHIPPING

### Texas

Ocean transport is a viable alternative to rail and motor transport when large-volume shipments are involved and when points of origin and destination are served directly by ocean freighters. The most important Texas seaports that engage in international commerce between the United States and Mexico are the Port of Brownsville, Port of Corpus Christi, and the Port of Houston. Their superior loading and unloading facilities and good interconnections with other modes of transportation make them more attractive to shippers than most Mexican ports located near the border. In 1988, the Port of Houston alone accounted for 5,144,756 short tons (worth \$519,770,000) of imports from Mexico and 745,248 short tons (worth \$255,638,000) of exports from Mexico.<sup>57</sup>

The Port of Brownsville is the closest seaport to Mexico. It is adjacent to the sister cities of Brownsville, Texas, and Matamoros, Tamaulipas. As the most important port for maquiladora commerce, Brownsville has a 17-mile channel, 36-feet deep, inland from the Gulf and South Padre Island. The main turning basin has docking facilities for 8 general-cargo ships, tanker vessels, and one bulk-commodity ship and berthing space for 12 barges. A bulk-materials warehouse can hold 30,000 tons of bulk materials, receiving and delivering at a rate of 30 tons per hour. Plans exist to deepen the channel to 42 feet and to reconstruct a new multipurpose terminal to handle containers, dry bulk, and heavy-lift cargo.

The port is connected by the Brownsville and Rio Grande International Railroad, which interchanges traffic with the Union Pacific (UP). The UP provides direct switching service to the Southern Pacific (SP) and the Ferrocarriles de Nacionales de Mexico (FNM).

The Port of Corpus Christi handles primarily bulk commodities; its primary commerce with Mexico entails importing crude petroleum. Twenty-six public docks at the main harbor handle dry cargo, bulk materials, bulk oil, and grain; thirty-one private docks service major petroleum refineries, petrochemical plants, and metal-fabrication operators. The port's interconnecting railroad tracks are operated and jointly served by the SP, Texas-Mexico Railway Company, and the UP.<sup>58</sup>

The Port of Houston, the third largest port in the United States in terms of total tonnage (118 million tons in 1988) is a general-purpose, deep-water cargo port. The port leads the nation in handling wheat, iron, and steel products. Public facilities are divided into terminals. The Turning Basin Terminal is the traditional port facility responsible for handling bulk cargoes, steel, grain, and automobiles. The terminal is a complex of wharves, transit sheds, warehouses, and a grain elevator, which stretches for approximately three miles along the ship channel.

Barbour's Cut Terminal is the port's major container facility. The terminal is currently undergoing an \$80 million expansion. Five privately owned container facilities operate along the ship channel as well. Finally, the Bayport Turning Basin terminal is a liquid-bulk specialty complex that is jointly operated by the port and Friendswood Development Company, a division of Exxon, to serve 54 chemical companies in the complex. In total, the Port of Houston Authority owns 39 general-cargo wharves available for public hire and two liquid-cargo wharves.



Transportation connections to the ship channel are numerous. The SP has direct lines to the port. Additionally, the Port Terminal Railroad Association provides service throughout the ship channel area. The association's lines also connect the port to the SP, Atchison, Topeka and Santa Fe (ATSF), Missouri-Kansas-Texas (MKT), and Burlington Northern (BN). Hobby Airport is six miles south of the channel, while Houston's Intercontinental Airport is twenty miles north.<sup>59</sup>

## Mexico

Responsibility for maritime transport rests with port service firms, las Empresas de Servicios Portuarios (ESP). These firms are owned in part by the state and operate the principal commercial ports in Mexico. They may also operate private docks that only service the proprietors of those docks. Taxes and fees are paid at the ports. The taxes apply to the services provided by ESP (loading and unloading, piloting, parking, etc.), and the fees apply to the passage and use of the docks and canals. Earnings collected return to ESP to maintain the equipment and service the infrastructure. Taxes and fees are fixed for all ports.<sup>60</sup>

Mexican seaports located reasonably near the border are found in the state of Baja California Norte, and Mazatlan in the state of Sinaloa. There also are Mexican ports in Tampico and Veracruz. The Mexican port system has not been relied upon for handling significant amounts of traffic involved in U.S.-Mexican trade because port infrastructure facilities are inadequate and dated, connecting rail service provided by the Ferrocarriles Nacionales de Mexico has been poor and unreliable, and industrial development has tended to concentrate in inland metropolitan areas.

One potential bright spot is that Puertos Mexicanos recently has issued a formal call for bids on various seaport construction projects, an area newly open to private-sector investment. The projects entail both commercial and tourist shipping terminals, located at, for example, Mazatlan, Veracruz, Cozumel, and Ensenada. Mexican authorities hope that "one of the many beneficial effects of enhanced commercial port facilities will be that a consequent movement of industrial installations into port areas will help relieve congestion in traditional centers of high manufacturing activity."<sup>61</sup>

## AIR CARRIER TRANSPORTATION

### Texas

The following section presents an overview of those air facilities along the Texas/Mexico border which either do or could contribute significantly to the volume of goods flowing between Mexico and the United States. The airports considered are El Paso International Airport, El Paso, Texas; Laredo International Airport, Laredo, Texas; Valley International Airport, Harlingen, Texas; Miller International Airport, McAllen, Texas; and Brownsville International Airport, Brownsville, Texas.

The Federal Airport and Airway Improvement Act of 1982 is the federal legislation governing the maintenance and improvement of the nation's airport system. The act divides airports into two functional categories: commercial service and general aviation.<sup>62</sup>

Commercial service airports are those facilities which provide regularly scheduled passenger service. Commercial service airports are further classified as either primary or nonprimary facilities, depending upon passenger volume and aircraft capacity. A facility must be capable of handling large and medium-size transport aircraft and have enplaned at least 0.01 percent of total national passengers to be designated as a primary commercial facility. In 1982, a primary facility enplaned at least 31,534 passengers.<sup>63</sup> A nonprimary commercial facility is capable of handling only smaller or commuter aircraft. In 1982, these facilities enplaned between 2,500 and 31,534 passengers.<sup>64</sup>

General aviation airports are those facilities which provide either business or private craft service. General aviation facilities are further classified as either business, community, or basic. As the name implies, general aviation business airports can handle business jets and smaller craft. Community service facilities handle single and light twin-piston-engine aircraft, as well as a limited number of business jets. Basic facilities generally can handle only single-piston-engine aircraft but are located within one-half-hour drive of a business, community, or commercial service airport.<sup>65</sup>

El Paso. El Paso International Airport in El Paso, Texas, is a publicly owned primary commercial facility. With a maximum runway length of 11,102 feet, it is capable of handling medium and large transport aircraft.<sup>66</sup> Total passengers travelling through El Paso International Airport numbered 1,170,000 in 1985, making this facility by far the busiest of those under consideration here. Recent passenger growth has been moderate at 7 percent during 1989. Projections indicate passenger totals could increase to 1,420,000 and 1,650,000 by the years 1990 and 2000 respectively.<sup>67</sup>

Five airlines currently serve El Paso International Airport: America West, American, Continental, Delta, and Southwest Airlines. Of these, Southwest has captured the lion's share of the market at 60 percent.<sup>68</sup> Expansion of the passenger terminal facilities is not a priority for officials at El Paso International. With a 250,000-square-foot passenger terminal operating at a mere 60 percent of capacity, officials note that El Paso International is capable of absorbing rapid growth in passenger totals in the foreseeable future. Expansion of the baggage-claim facilities is their top priority, according to a master plan for airport improvement that was scheduled for release in June 1990. If accomplished on schedule, expansion of the baggage-claim facilities should be complete within three years.<sup>69</sup>

While cargo was the fastest-growing operation at El Paso International only three years ago, officials note that growth in this sector appears to have diminished within the last eighteen months. Even so, a 110,000-square-foot cargo facility is operating at 100 percent capacity, with Federal Express, Emery, Airborne Express, Burlington Express, and Delta currently leasing space. Growth in cargo operations indicates the need to expand present facilities. However, whether such an expansion is contemplated in the above-noted master plan is not known at this point.<sup>70</sup>

Laredo. Laredo International Airport is a publicly owned, nonprimary commercial facility. Its runway length of 8,200 feet gives the airport the same ability to handle up to 727-class aircraft that larger airports possess. Unlike those facilities, however, the volume of passengers travelling through Laredo is not sufficient to designate the airport as primary.<sup>71</sup>

Four airlines currently serve Laredo International Airport: American Eagle, Continental, Conquest, and Laredo Air. Passenger growth has been remarkably strong in recent years, averaging 45 percent since 1987 and surpassing 57,000 in 1989. These passenger totals are approximately five years ahead of the schedule predicted by officials after the devaluation of the Mexican peso in 1982. Early figures for 1990 show continued strong growth. It is estimated that by the year 2000 total passengers should reach 74,000.<sup>72</sup>

Both to encourage and accommodate this growth in passengers, airport officials in Laredo are considering expansion of the current 9,829-square-foot passenger terminal facility. Consultants are being hired to estimate appropriate facility size, given the burgeoning demand for space at the current facility. As such, details on the proposed terminal project are not yet available, but it is considered that the expansion will occur during the latter stages of a general airport expansion scheduled for completion within the next five years. The master plan for the general expansion is currently under development.<sup>73</sup>

The cargo operation at the Laredo International Airport has also experienced strong growth in recent years, driven primarily by the increase in twin-plant operations across the

border in Nuevo Laredo. The current cargo facility occupies 17,861 square feet and operates at less-than-full capacity. Tenants include American Air Freight, Connie Kalitta Service, Cavazos Air Freight Service, Federal Express, and United Parcel Service. An expanded multi-use cargo facility is planned within the next two years as part of the above-noted general airport expansion.<sup>74</sup>

Officials at Laredo International expressed an interest in seeing the airport serve as a cargo clearinghouse for maquiladora operations as far south as Brownsville. They noted that the inability of the facility to accommodate 747-class aircraft currently forces major maquiladora operators in the area to fly goods into either San Antonio or Houston and then truck the goods into the Laredo/Nuevo Laredo area. To capture a greater share of this market, airport officials have taken several steps.<sup>75</sup> Recently, airport officials were successful in having the entire 1,500 acres that house Laredo International designated as a foreign-trade zone. Previously, only 500 acres on the property were so designated. Officials believe the increase in foreign-trade-zone acreage will serve as a valuable marketing tool in efforts to entice new enterprises into the area.<sup>76</sup> To allow the airport to accommodate larger and heavier cargo and passenger aircraft, a project is now underway to reinforce the concrete taxiways at Laredo International. The \$3.5 million project is scheduled for completion within the year. Once completed, the airport will be able to accommodate up to and including stretched versions of DC-8 aircraft.<sup>77</sup>

Plans for passenger and cargo facility expansion, the designation of the entire airport as a foreign trade zone, and reinforcement of the taxiways to accommodate larger aircraft indicate that officials at Laredo International are serious in their attempt to capture a larger share of the Mexican-American international market in passengers and cargo.

Harlingen. Valley International Airport in Harlingen, Texas, is a publicly owned primary commercial facility. The 3,000-acre facility includes a runway of 8,300 feet, giving the airport the ability to accommodate up to 727-class aircraft.<sup>78</sup> Serving over 1,000,000 passengers annually, Valley International Airport is by far the busiest facility in the Rio Grande Valley. Among valley airports, including those in McAllen and Brownsville, Valley International commands a 75 percent share of the passenger market. Volume has grown over 100 percent since 1985, when passengers to Harlingen totalled 460,000. As growth has already surpassed previous projections for 1990, a conservative estimate for passenger totals by the year 2000 is 1,372,000.<sup>79</sup>

American, Continental and Southwest Airlines currently serve Valley International Airport, with Mexicana de Aviacion expected to reinstate service within one year. The 1988 bilateral treaty negotiated between Mexico and the United States allows one U.S. carrier to serve Mexico from both Valley International Airport and Miller International Airport in McAllen. The Harlingen facility is authorized to serve nineteen cities in Mexico, while the Miller International is authorized to serve only four. In addition, the treaty stipulates that one Mexican carrier may serve only Harlingen from 31 cities in Mexico.<sup>80</sup>

To preserve its position as the dominant regional facility, Valley International is undergoing extensive renovation. A \$20 million expansion and improvement of the terminal facility is underway. Scheduled for completion in November 1990, the project will triple terminal space from 50,000 square feet to 150,000 square feet, including a 28,000-square-foot U.S. Customs Service inspection facility. The number of gates will also increase from three to seven. The project is being financed both by a bond sale and a grant from the Federal Aviation Administration.<sup>81</sup>

Already the dominant regional airport in terms of passenger volume, Valley International Airport seeks to capture a larger share of the cargo traffic in the McAllen/Brownsville/Harlingen market. Toward that end, a five-year capital improvement program has been adopted, including development of air cargo facilities and associated ramp areas, extension of one runway to 9,500 feet and acquisition of land for a future parallel runway, and construction of a new parking facility to serve the terminal. The first two projects are eligible for federal funding and should



be complete within the five-year period.<sup>82</sup>

To encourage cargo operators and manufacturing enterprises to relocate in Harlingen, the Industrial Airpark is also being expanded. Over 400 acres of land have been purchased, increasing the airpark to 640 acres. Access roads and utilities have recently been installed. The park includes both enterprise and foreign-trade zones. Twenty acres within the airpark have been set aside for construction of an air freight facility in the near future, although details are not yet available.<sup>83</sup>

Several cargo companies presently operate at Valley International in space that they must provide independently. The above-mentioned bilateral treaty authorizes one U.S. carrier to provide cargo/express service into Mexico from both Harlingen and McAllen. The U.S. Department of Transportation has granted the Harlingen authority to Federal Express, which now provides that service to Mexico City, Guadalajara, and Monterrey. Federal Express also uses Valley International as its gateway into Central and South America. In the near future and as the previously mentioned capital improvements are completed, Federal Express plans to upgrade its Harlingen fleet to include both DC-8 and DC-10 class aircraft.<sup>84</sup>

McAllen. Miller International Airport in McAllen, Texas, is a publicly owned primary commercial service facility. With a maximum runway length of 7,100 feet., the airport has the same capacity to handle up to 727-class transport aircraft as does Valley International, yet ranks second to the Harlingen facility in other regards.<sup>85</sup> Passengers travelling through Miller International Airport totalled 177,000 in 1985, giving the facility a 25 percent share of the Rio Grande Valley passenger market. In recent years, however, passenger growth has been very strong and ahead of projections. Passengers through Miller International totalled 389,561 in 1988 and 415,733 in 1989, 220 percent and 234 percent, respectively, above the 1985 figure.<sup>86</sup> Two airlines currently serve Miller International Airport: Continental and Conquest. Of the two, Continental provides the international air service into Mexico authorized by the above-noted bilateral treaty.<sup>87</sup>

Presently, terminal space at Miller International measures 54,000 square feet. The small size of the facility, in comparison to the one under construction in Harlingen, may make it difficult for Miller International to attract new carriers in the near future. However, officials at Miller International have taken other steps to cut into the passenger lead held by Valley International. Recently, they received a \$747,000 grant from the Federal Aviation Administration to expand two general aviation areas. Total projected cost for the additions is \$400,000, and, when completed, it will allow Miller International to accommodate more and heavier general-aviation aircraft.<sup>88</sup>

Construction is now complete on a \$2.1 million air cargo facility adjacent to the terminal building. Total space for the new facility measures 48,000 square feet. Funding for the project was provided by a grant from the Federal Aviation Administration and the city of McAllen. A portion of the facility is designated as a second site for the McAllen foreign-trade zone with a U.S. Customs office and U.S. Department of Agriculture testing lab on site.<sup>89</sup>

Current air freight carriers operating at Miller International Airport are Airborne Express, Burlington Northern, Continental Jet Freight, Emery, and Federal Express. One additional operator, Evergreen, has leased space at the new cargo facility and is expected to begin operations shortly.<sup>90</sup>

Brownsville. Brownsville International Airport in Brownsville, Texas, is a publicly owned primary commercial facility. It's runway length of 7,400 feet is roughly approximate to that of Miller International Airport in McAllen, and gives the facility the same capacity to handle up to 727-class aircraft.<sup>91</sup>

Passengers through Brownsville International Airport numbered 71,000 in 1985. However, in the past it has been extremely difficult for Brownsville to compete with Harlingen and McAllen for passengers in the Rio Grande Valley market. Soft demand on routes into Brownsville forced major carriers to eliminate their operations. At present, no carriers provide regularly scheduled service into Brownsville. The soft demand is almost certainly explained by the presence of three airports in the area, all within 35 miles of Harlingen. Thus, a 150,000-square-foot passenger terminal awaits the arrival of a carrier that can meet the geographic challenges.<sup>92</sup>

Airport officials in Brownsville have concentrated their improvement efforts on the cargo sector. At the present time, a 30,000-square-foot cargo facility is operating at 100 percent capacity, with Burlington Express and Emery currently providing service. Noting that cargo demand is strong, airport officials are eager to take full advantage of the cargo market that presently exists in the Brownsville area. Recently, the Federal Aviation Administration and the city of Brownsville made \$1.5 million available for improvements to the taxiways and lighting structures at Brownsville International. Additionally, the purchase of an airport rescue and fire-fighting vehicle is planned. Expansion of the cargo facilities in the immediate future is not being contemplated at this time.<sup>93</sup>

Airports considering expansion programs or projects to improve current facilities can apply to the Federal Aviation Administration for grant funds. The Airport and Airway Improvement Act of 1982 authorizes the use of the Airport and Airway Trust Fund to fund projects under the Airport Improvement Program. To be eligible for a grant, an airport must be publicly owned or, if private, must be designated as a reliever or commercial facility. Funds can be used for construction, improvement, or repair of equipment and facilities at an airport.<sup>94</sup> Typically, grants administered by the Federal Aviation Administration go to larger airports and projects. Although larger airports are generally self-sufficient, the enormous cost of capital improvements at such a facilities is usually beyond the funding capacity of internal or local-government budgets.<sup>95</sup>

The state of Texas also administers grants through the Texas Department of Aviation (TDA). The TDA works in conjunction with federal authorities to channel funding to those facilities in the state with the most urgent needs for funding. As such, the TDA works very closely with local airport officials and provides these officials with the information necessary to apply for federal funding. Because smaller airports within the state do not receive federal funds very often, these smaller airports receive the bulk of funding from the state government. Priority in state funding goes to the preservation of existing airport facilities.<sup>96</sup>

#### **United States-Mexico Cargo Market**

American Airlines, Continental, and Pan Am provide cargo capacity in passenger aircraft. The level of airborne trade between the U.S. and Mexico declined by 12,300 tons between 1980 and 1986.<sup>97</sup> Several U.S. carriers have expressed an interest in expanding cargo services to Mexico. Federal Express, Emery, and others have expressed interest in initiating Mexican service.

Cargo transported between the United States and Mexico has been a profitable venture for American Airlines. Cargo shipments go to Guadalajara, Monterrey, and Mexico City. Cargo accounts for 5 percent of American Airlines' gross revenues. American ships three pounds of freight south for every two pounds north. One executive believes that by the mid-1990s, "combi's" (passengers and freight on the main deck with freight in the belly) will attain a bigger share of the market.<sup>98</sup> American Airlines' biggest customer in Mexican-American trade is Chrysler. American carries mostly manufactured parts to Mexico. From Mexico, American brings back finished and intermediate goods produced with advanced technology. The air carrier normally ships about 200,000 pounds a week between Mexico and the United States. A normal



shipment runs from \$40-\$50 per hundred weight. Shipping express runs \$65 per hundred weight.<sup>99</sup>

Maquiladoras represent the source for greatest potential growth in air services. Some maquiladora raw materials and products are handled overnight by charter air freight from various border and interior locations. Stern Air specializes in maquiladora service. Scheduled commercial air transport handles air freight from border sites and maquiladora locations in Chihuahua, Merida, and the Yucatan.

## Mexico

Mexican air transportation has experienced changes similar to those of land transportation. A Memorandum of Understanding (MOU) negotiated between the U.S. and Mexico in January 1988 greatly expanded the ability of each country's air carriers to provide scheduled air cargo services between their respective territories.<sup>100</sup> Previously, Mexican government regulations severely restricted the entrance of foreign airlines into the Mexican air cargo market. Concessions expanding routes for foreign carriers operating in Mexico were uncommon. Although a large-scale deregulation of the domestic airline industry is unlikely, current policies in Mexico have altered the composition of the industry today.<sup>101</sup>

Two general types of commercial aviation service originate from Mexico: a large carrier service and small aviation operations. The two large national airlines are Aeromexico and Mexicana de Aviacion.<sup>102</sup> According to the 1988 census, there are 77 small aviation operations.<sup>103</sup>

In September 1989, Mexicana underwent reorganization as a privatized firm. Since the process of reorganization, Mexicana has generated a profit, commanding over 40 percent of the air cargo market share. Mexicana anticipates expanding in the near future and plans to purchase two planes with additional cargo capacity.<sup>104</sup> In contrast, Aeromexico currently faces bankruptcy. The Mexican government indicated its desire to sell the unprofitable enterprise, but no offers have been made to date.<sup>105</sup>

Mexicana and Aeromexico<sup>106</sup> provide cargo services in the bellies only.<sup>107</sup> A DC-10 wide-body aircraft with 350 passengers can accommodate eight tons of cargo. However, climatic conditions in Mexico's industrialized regions prevent optimum use of plane capacity.<sup>108, 109</sup> In-bound cargo includes electronics, computers, automotive parts (harnesses), and chemicals. Outbound cargo includes perishables such as fish and flowers. Twenty-five percent of the cargo is intermodal, since many shipments are en route to a border maquiladora by truck--many as far north as Monterrey or as far south as the Yucatan.<sup>110</sup>

Thirteen Mexican firms specialize in air cargo services. They are

1. Transportes Aeromar
2. Intepestal De Aviacion
3. Servicios Aereos de Carga
4. Linea Federal De Carga
5. Mayacarga Internacional
6. Transportación Aerea Mexicana
7. Transporte de Carga Especializada y Servicios Aeronauticos
8. Transportes de Carga Aeropacifico
9. Transportes Aereos Ejecutivos
10. Transportadora San Lucas
11. Aereo Unión
12. Aviorrent
13. Aerolineas Marcos

The Mexican government designates cargo service between the following cities: Chihuahua, Toluca, Guadalajara, Monterrey, Matamoros, Hermosillo, Merida-Miami, Houston, McAllen, Harlingen, Detroit, El Paso, Memphis, Oakland.<sup>111</sup> In September 1989, the U.S. Department of Transportation selected Federal Express, United Parcel Service, and Evergreen International to provide scheduled air cargo services between the U.S. and Mexico, as authorized by January 1988 MOU. Applications for cargo charters and flight services have increased tremendously. The SCT has begun studying cargo traffic in light of the increasing demand and intends to develop a five-year plan. The SCT also intends to promote the development of a company that would compete with Federal Express.<sup>112</sup>

Table 3.3

Carrier Traffic Growth and Market Share

| Year | U.S. Carriers |           | National Carriers |           | Third-Country Carriers |           |
|------|---------------|-----------|-------------------|-----------|------------------------|-----------|
|      | Tons          | Share (%) | Tons              | Share (%) | Tons                   | Share (%) |
| 1986 | 12224         | 32.6      | 17258             | 46.0      | 8031                   | 21.4      |
| 1985 | 18069         | 37.5      | 18798             | 39.1      | 11264                  | 23.4      |
| 1980 | 25507         | 51.5      | 18945             | 38.2      | 5098                   | 10.3      |
| 1975 | 8679          | 47.6      | 8235              | 45.1      | 1335                   | 7.3       |

Source: U.S. Dept. of Transportation, State Cargo Study, p. 192.

Table 3.4

U.S. Airborne Trade With Mexico

| Year | Exports     |               | Imports     |               | Total       |               |
|------|-------------|---------------|-------------|---------------|-------------|---------------|
|      | Tons (000s) | Traffic Index | Tons (000s) | Traffic Index | Tons (Tons) | Traffic Index |
| 1986 | 26.6        | 195.6         | 10.9        | 231.9         | 37.5        | 206.0         |
| 1985 | 37.5        | 275.7         | 10.7        | 227.7         | 48.1        | 264.3         |
| 1980 | 41.9        | 308.1         | 7.7         | 163.8         | 49.5        | 272.0         |
| 1975 | 13.6        | 100.0         | 4.7         | 100.0         | 18.2        | 100.0         |

Source: U.S. Dept of Transportation, State Cargo Study, Table 6.59, p. 192.

Recent available reports indicate that the level of airborne trade between the U.S. and Mexico has declined. In 1980, 49,800 tons were traded; in 1988, 37,500 tons were traded. Imports increased by 3,000 tons, while exports decreased by over 15,000 tons for the same period. This decline is attributed to Mexico's internal economic problems and the austerity program employed to address those problems. This program has constrained Mexican purchase of U.S. products.<sup>113</sup> However, it may be necessary to examine more recent flows of trade. The Mexican economy has become fairly stable in the past year, and that stability creates a positive signal for increasing trade flow.

The extent and nature of border air trade can not be determined with any precision at this point. Maquiladoras frequently employ air cargo service. Automotive companies have recently

begun to move cargo with small planes. Volkswagen employs jumbo jets to transport cargo from Frankfurt. Maquiladoras tend to rely on ground transportation as the mainstay of their transportation needs. Nevertheless, small, expensive pieces of equipment (i.e., electronics and replacement parts) are transported by air when timing and security are important.<sup>114, 115</sup>

## CONCLUSIONS

General statistics are available for each mode in Mexico. However, subset statistics that permit an examination of modal tonnage flow and the total value of that flow to Texas and from Texas are less common. Updating the present statistics through 1989 may be desirable before extrapolating trends because of the changes in regulations, the economy, and trade. Intermodal transportation statistics are desirable for this project. Although it may seem irrelevant to border trade that more flights are entering and leaving Mexico City, it must be remembered that intermodal transportation links may be having a larger effect on trade traffic. Containerization has increased rail traffic as industries elect multimodal options for their transportation needs.

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## Chapter 4. U.S. and Mexican Regulatory Issues

### INTRODUCTION

This chapter addresses issues related to the regulatory framework that governs transborder commercial motor carrier operations. The first half of the chapter describes the status of various binational motor carrier access and safety issues and the process by which these issues are being resolved through bilateral negotiations. The second half discusses the implications of the Mexican government's recent transportation deregulation initiatives, principally that nation's domestic trucking industry.

As described in the previous chapter, transborder commercial motor carrier operations comprise a mixture of for-hire motor carriers (common and contract) and private motor carriers, each of which may haul exempt and nonexempt products and may be domiciled in either the U.S. or Mexico. Cross-border truck traffic may also be distinguished according to type of cartage: main line (long haul) and shuttle (short haul/local cartage). The role of Mexican shuttle carriers has been critical to the flow of transborder commerce. With few exceptions, Mexican shuttle carriers transship the majority of all cargo through the international ports of entry.

Although local access arrangements vary among border communities, Mexican motor carriers generally have had much freer access to Interstate Commerce Commission (ICC) commercial zones on the U.S. side of the border than U.S. carriers have had to the Mexican frontier zone. An ICC commercial zone is a designated urban trade area within which Congress exempts for-hire motor carriers from having to obtain ICC operating authority. The Mexican frontier zone, extending approximately 28 kilometers from the border into the interior, was established by Mexico to permit unrestricted entry of noncommercial vehicular traffic and people from the United States. Although the 1955 Ruiz Cortines Decree authorizes access of for-hire U.S. motor carriers to Mexican border communities, the decree has not been applied uniformly and has been largely ineffectual.<sup>1</sup> Moreover, the 1940 Law of General Means of Communication, which allows private U.S. motor carriers to haul cargo to which they hold title, has been subject to differing Mexican state legal interpretations. Article 152 of the law also restricts commercial use of federal highways to Mexican nationals.<sup>2</sup> As a result, U.S. trucking companies and shippers are interested in securing more liberal and consistent access to Mexican border communities, and, in the short run, more efficient ways to transfer long-haul cargo at the border through joint and cooperative agreements with Mexican motor carriers. In the long run, they believe that it would be beneficial to both countries to allow less restricted access to the interior. The U.S. government also is interested in negotiating a variety of safety-related issues.<sup>3</sup>

### BILATERAL NEGOTIATIONS

In recent years, much of the progress toward resolving transborder transportation problems has come through bilateral consultations. The underlying goal of these consultations has been to develop a more uniform and open transportation system, such as that which now exists between the United States and Canada. The achievement of uniformity and open access between the U.S. and Mexico could eventually establish a standardized transportation system for all of North America.<sup>4</sup>

#### Framework Agreements

The formal discussion of transportation issues began with the signing of a framework agreement announced by then-U.S. Trade Representative Clayton Yeutter and Mexican Secretary of Commerce and Industrial Development Hector Hernandez in October 1987. While consultations occurred on an ad-hoc basis prior to 1987 and there were preliminary discussions of a framework agreement in 1985, negotiations on the actual agreement began January 1987. These



negotiations were completed in October of 1987, and the document was signed the following month.<sup>5</sup>

The framework agreement constructed by Ambassador Yeutter and Secretary Hernandez was an umbrella accord establishing a mechanism for consultations on both trade and investment issues. These consultations start at the level of working groups from both countries that meet to discuss issues of importance to either country.

Section II, parts 1 and 2, of the agreement, signed in November 1987, laid the groundwork for these working groups. Part 1 states that

"either party may request at any time consultations with the other party on any matter concerning bilateral trade and investment relations, including trade and investment opportunities and problems. Any such consultations shall be without prejudice to the requirements of domestic law."<sup>6</sup>

Part 2 states that

"request for consultations shall be accompanied by a written explanation of the subject to be discussed and consultations shall be held within 30 days of the request, unless the requesting party agrees to a later date. Consultations will take place initially in the country whose measure or practice is the subject of discussion."<sup>7</sup>

#### **Transportation Working Group**

These mechanisms have fostered working groups that meet to discuss broad issues and policy goals and to solve particular problems. The transportation working group is one of these and meets every six months on a permanent basis. It would also meet on an emergency basis if a problem arose, and it would provide a basis for informal staff-level contacts.

The first step toward a permanent working group on transportation issues began in plenary sessions between the U.S. and Mexican governments in late 1988 and early 1989. After the concept of a permanent group was agreed upon, the working group's next step was to formulate a plan of action.

Following the third of a series of three meetings of the U.S.-Mexico Transportation Working Group (originally called "Motor Carrier Working Group"), they announced a plan of action.<sup>8</sup> Among the agreed-upon actions and goals were resolutions to: address requests from both sides to operate in commercial border zones; allow the free negotiation of intercompany agreements; simplify customs procedures on both sides of the border; and formulate compatible safety standards and drivers' licenses and work toward developing inspection procedures.<sup>9</sup>

#### **Current Status of Transportation Working Group**

The working group acts as a consultative forum, meeting to solve acute problems and also to address long-term structural issues. The first of these regular meetings was held in Mexico City in February 1990, with meetings planned for every six months alternating between Mexico City and Washington. The group has expanded its scope by adding rail transportation issues to its agenda.

#### **MOTOR CARRIER ACCESS ISSUES**

Border access reciprocity is of great concern to U.S. shippers and carriers, many of whom are actively pushing for negotiations to encourage Mexico to liberalize its access laws. A fair and

reciprocal policy with Mexico, they believe, would result in greater efficiency, lower overall costs to them and the ultimate consumer, and, of course, greater profits for their interests. At this point, the focus is on frontier-zone access and liberalized investment laws, but a long-term goal is general access.

### **Certificates of Registration**

In 1988, the U.S. Congress modified the certificate of registration (CR) program, which was originally instituted in the Motor Carrier Safety Act of 1984 to cover exempt and private foreign motor carriers. The CR allows Mexican motor carriers to operate within border commercial zones. The 1988 law expanded coverage to for-hire carriers. On June 9, 1989, the Interstate Commerce Commission (ICC) issued a notice of proposed rulemaking to accommodate those congressional modifications.<sup>10</sup> The CR requirements for Mexican carriers officially went into effect January 1, 1990, but actual enforcement did not begin until February 19, 1990. These certificates are proof of U.S. required minimum insurance, compliance with vehicle safety standards, and road tax payments. Only Mexican motor carriers must obtain a CR under section 10530 of Title 49, U.S. Code, although it could be imposed on Canada.<sup>11</sup> This certificate is requested from the ICC and normally returned within 30 days if approved. Also, initial registration will carry over from year to year as long as the carrier remains in compliance with the conditions to which he or she has attested and violates no other laws or regulations.<sup>12</sup>

### **Important U.S. Federal Legislation Concerning Motor Carriers**

The Truck and Bus Safety and Regulatory Reform Act of 1988 (the 1988 act), which is included as sections 9101-9115 of the Omnibus Budget Reconciliation Act of 1988, was designed to rectify the lack of reciprocity within Mexican border communities for U.S. commercial motor carriers that do not have access to most Mexican border communities.<sup>13</sup> It clarifies previous statutes restricting Mexican carriers to the ICC zones and requires private and exempt carriers to obtain a certificate of registration from the ICC.

The four major provisions of the 1988 act are that all commercial foreign motor carriers (private, exempt, and for-hire) are required to obtain Certificates of Registration to operate in the commercial zones of U.S. border communities; that all commercial foreign motor carriers are required to comply with a single federal insurance requirement to operate in the ICC commercial zones of U.S. border communities (single-trip insurance is authorized for these carriers); that the exempt intracity safety zones within U.S. border communities are abolished; and that, in light of this abolition and its possible effect on Mexican carriers, the U.S. Department of Transportation (DOT) is required to assess the ability of vehicles of Mexican manufacture to comply with the full weight of federal safety standards, part 393, Parts and Accessories, 49 Code of Federal Regulations. Enforcement of some of these requirements on Mexican carriers was delayed until the DOT's study was completed. The study found that Mexican vehicles could meet all of the standards with the exception of the requirement for front-wheel brakes. Enforcement of that requirement for Mexican trucks was postponed until January 1, 1991, to allow Mexican carriers time to meet this standard. The purpose of the act is to simplify and strengthen the regulation of Mexican motor carriers within U.S. border communities.<sup>14</sup>

### **MOTOR CARRIER SAFETY ISSUES**

Enforcement of the federal safety standards usually falls to the individual states under the Motor Carrier Safety Assistance Program (MCSAP). Since 1983, the Federal Highway Administration (FHWA) of the U.S. DOT has transformed the legislative concept of MCSAP into a respected inspection program, now involving 2,900 primarily state officers, supported or supervised by 560 administrative personnel.<sup>15</sup>

MCSAP is a fairly flexible grant program, allowing states to tailor their own safety program to meet unique local and state

requirements, safety conditions, and philosophies. Because of the latitude that FHWA gives participating states, there are really 52 different but somewhat similar MCSAPs. However, FHWA tries to maintain a uniform program by requiring the states to use uniform inspection procedures....<sup>16</sup>

The implementation of MCSAP has numerous implications for the state of Texas.

Safety for motor carriers, including Mexican carriers in the U.S., is an issue for both the federal and Texas state governments. All commercial motor vehicles above a gross vehicle weight of 10,000 pounds (including motor buses) must meet federal safety standards. The primary issues are that Mexican carriers comply with the safety standards of the U.S. Code of Federal Regulations (49 CFR) enforced mainly through the Motor Carrier Safety Assistance Program (MCSAP) of the Federal Highway Administration (FHWA) and that the requirement that insurance in required amounts (also set by FHWA) is to be held by Mexican carriers operating in the U.S. The Mexican government fully supports this enforcement effort, which simply ensures that U.S. and Mexican carriers meet the same requirements while operating in the United States.

#### **Background on Motor Carrier Safety Assistance Program**

Congress created MSCAP in the Surface Transportation Assistance Act of 1982 (P.L. 97-424). Under MCSAP, the FHWA provides grants to participating states to enforce federal or compatible state motor carrier safety and hazardous materials transportation regulations affecting commercial vehicles and their drivers.<sup>17</sup> Through these grants, states are encouraged to establish programs that seek to "reduce the number and severity of accidents and hazardous material incidents involving commercial motor vehicles."<sup>18</sup> Prior to the fall of 1989, Texas regulations were not compatible with federal safety guidelines, and, as a consequence, Texas was precluded from membership in MCSAP.

MCSAP aims to meet these objectives by transferring the bulk of safety enforcement activity to those states that have formulated guidelines mirroring Federal Motor Carrier Safety Regulations (FMSCR). FHWA encourages members of this federal-state partnership to formulate uniform safety regulations. While it stresses uniformity, FHWA seeks to encourage innovation in individual state MCSAP activities that does not thwart or diminish the statutory purposes of the overall program.<sup>19</sup>

#### **Texas and the MCSAP**

Texas lagged behind most states in creating compatible rules and enforcement guidelines before the promulgation of MSCAP in 1983. During the 70th Legislative Session in 1987, Texas enacted a law that brought the state in line with federal safety standards. This action came as a response to statistics released in 1986 showing Texas ranking among the top three states in the nation in number of per capita truck accidents, fatalities in truck accidents, injuries associated with truck accidents, and property damage related to truck accidents.<sup>20</sup>

House Bill 908 specifically addressed the issue of compatibility with federal safety regulation. It directed the Texas Department of Public Safety (DPS) to adopt regulations that would "duplicate or be consistent with current (federal) regulations, including the Hazardous Materials Regulations (49 CFR parts 386 and 388-399)."<sup>21</sup> In addition, the law dictated that "any regulation relating to motor carrier safety adopted by a local government, authority, or state agency or officer, other than the Director (of DPS), must be consistent with corresponding federal regulations."<sup>22</sup> When local law conflicted with this new state standard, the state regulation would take precedence.

Protests from state trucking groups caused the DPS to postpone the effective date of the law until September 1, 1989, rather than January 1, 1988. The delay offered the state legislature

an opportunity to reconsider HB 908. In 1989, the legislature passed Senate Bill 1204, an amended version of HB 908, which brought Texas into compliance with FMCSR on October 1, 1989. Texas lost \$2.5 million in annual MCSAP enforcement funds as a consequence of the delay.<sup>23</sup>

This generated controversy in itself. DPS officials claimed in October 1989 that they needed twice the number of state troopers they currently had in order to enforce the law and remove unsafe trucks from service.<sup>24</sup> As a result of Texas' recent compliance with federal standards, MCSAP funds are now available to augment DPS enforcement capacity.

### **Enforcement Capabilities**

Texas' enhanced enforcement capabilities had an effect on transborder trucking. Although Mexican trucks are technically held to the same safety standards as any other vehicles operating on Texas highways, in practice both federal and state inspections tended to avoid the Texas border region because of perceived sensitivities and lack of resources. These sensitivities are not consistent along the border. Nor are enforcement controversies limited to safety issues.

Since every border community in Texas has a unique relationship with its Mexican sister city, the climate for enforcement varies according to the dynamics of these relationships. On the one hand, DPS's increased visibility was received enthusiastically by city officials in Brownsville. Resentment had built up over road wear caused by overweight unmonitored Mexican trucks. In Laredo, on the other hand, tensions arose over what is perceived as DPS intrusion into a local concern.<sup>25</sup>

Another controversy also relates to enforcement of the statute that prohibits cabotage by Mexican operators along the border. The issue results from the unique dynamics of the Texas border region and intrastate trucking regulations in Texas. First, intrastate cargo rates are controlled by the Railroad Commission of Texas, with minor deviations allowed.<sup>26</sup> Second, Mexican carriers are allowed, under license, to operate vehicles in international carriage between Mexico and the commercial zones established by the ICC. Since there has been little monitoring of Mexican carriers in these border zones until recently, some American shippers have taken advantage of the presence of Mexican carriers in the commercial zones to circumvent regulated rates by shipping cargo on Mexican trucks. Mexican trucks can legally haul only from a point in Mexico to another point in the border commercial zone, not from point to point within the zone. Though there has been little crackdown on this practice so far and the extent of illegal activity is not really known, attitudes are changing. This is a situation in which self-monitoring will be necessary: American truckers will have to bring this to the attention of the authorities.<sup>27</sup>

### **Recent Developments in Regulation of Mexican Carriers**

Other recent developments at both the federal and state levels affect Mexican trucking operations in the U.S. In November 1988, the U.S. Department of Transportation formally abolished exempt intracity zones nationwide, making all commercial vehicles subject to all federal safety standards, with Mexican trucks exempted from part 393, pending conclusion of the DOT study noted earlier.

This postponement resulted from the findings of the study mandated by the 1988 act. The study examined all aspects of part 393 as first applied to Mexican carriers, including front brakes. U.S. Department of Transportation officials had been concerned that Mexican manufacturers and motor carriers did not have sufficient lead time to comply with the U.S. front-brake requirements incorporated into part 393 (effective February 27, 1987).<sup>28</sup> In his report to Congress, U.S. Secretary of Transportation Samuel K. Skinner recommended that "a transition period, to January 1, 1991, should be established for Mexican motor carriers operating in border commercial zones to comply with the front brake standard." This recommendation was adopted through DOT regulation.<sup>29</sup>



The effect of the exempt zone repeal, paired with Texas' new motor carrier safety legislation, created new and enforceable standards that apply to all motor carriers in Texas, including the adoption of federal MCSAP standards and the abolishment of exempt intracity zones. Mexican carriers were exempt from federal safety regulation while remaining in the intracity zones, although there was nothing in the enforcement and regulatory authority of FHWA that prevented states and local communities from creating and enforcing their own safety regulations within these zones.<sup>30</sup>

Prior to the zone's repeal, the role of Mexican carriers in the exempt intracity zones was not clearly defined in Texas law. House Bill 908 brought commercial zones under state regulation, but this was effective only from the time of Texas' entrance into MCSAP and the intracity zone abolishment. By passing a safety code similar to the FMCSR and enforcing it statewide, Texas had the ability to eliminate the exempt intracity zones prior to their abolishment by the federal government. This is a moot point now that Texas is in MCSAP and the exempt zones have been abolished.

### Inspections

The greater number of DPS officers plus new authority to place vehicles in violation of safety requirements out of service, make Texas' enforcement capabilities compatible with the other three U.S.-Mexican border states. Mexican carriers are now subject to inspections conducted under the North American Standard of the Commercial Vehicle Safety Alliance, incorporated into federal regulations:

North American Standard -- An inspection that includes each of the items specified under the North American Uniform Driver/Vehicle Inspection criteria. As a minimum North American standard inspections must include examination of: driver's license, medical examiner's certificate and waiver if applicable, driver's record of duty status as required, hours of service, seat belt, vehicle inspection report, brake system, steering mechanism, wheels, tires, coupling devices, suspension, frame, fuel system, exhaust system, windshield wipers, lighting devices, cargo securement, and hazardous waste requirements as applicable.<sup>31</sup>

Roadside inspections permit concentration on the "critical elements" of roadworthiness established by the FHWA.<sup>32</sup> Moreover, truck size and weight have direct consequences on federal roads too. FHWA believes control of these factors can extend the life of our highway system.

The changes described above constitute a new and more effective regulatory environment. Compatible regulations at the federal and state levels and the elimination of the exempt intracity zones have clarified the previous morass of regulations. These changes will simplify border transactions and resolve problems for Mexican and American carriers alike.

### Insurance

Before the 1988 act, Mexican for-hire carriers fell under the purview of federal law (requiring vehicle operators to carry Form MCS-90/B on board their vehicles), whereas private and exempt carriers fell under state law. Currently, all Mexican trucks must have a federal MCS-90 insurance form on board and a card or binder stipulating the expiration date of the insurance when crossing the border. This form is routinely checked by U.S. Customs at the border. The MCS-90 and MCS-90/B are forms issued to the operator by an insurance company certifying that the full minimum insurance requirements have been met.<sup>33</sup>



The Interstate Commerce Commission clarifies this insurance question in that "Congress has entrusted DOT with the responsibility to establish the minimum level of insurance foreign motor carriers and foreign motor private carriers must hold in order to operate in the United States."<sup>34</sup> The issue of trip insurance was settled under the 1988 act, which allowed an alternative to the continuous coverage ICC normally requires, rather than the continuous coverage now required. The ICC says the regulation did not mandate trip insurance but that the commission would accept it if it were permitted by DOT. Single-trip insurance is now formally allowed by DOT/FHWA rulemaking.

#### **Driver's License**

A new uniform Commercial Driver's License (CDL) standard has been established by the DOT, and by 1992 all states must adopt the new standard or risk the loss of federal highway funds. The law requires the DOT to review standards of Mexico and Canada to ensure that their standards are compatible with U.S. standards. If they are incompatible, foreign drivers will be required to obtain a license from a state whose standards are compatible. By April 1, 1992, all truck and bus drivers must have a license from a state or foreign jurisdiction that meets DOT standards.<sup>35</sup> Until this process is completed, foreign drivers may use their national license unless they operate in a state that requires foreign carriers to obtain state licenses. Texas such a state.

Reciprocity with Canada has been established so Canadians must use their single Canadian license only. However, review of Mexican standards is not complete. In the interim, Mexican drivers are required to have state licenses in each of the border states in which they operate.

#### **RECENT ECONOMIC REFORM IN MEXICO**

The following section will discuss the major developments in the Mexican motor carrier regulatory regime since the early 1980s. In order to appreciate the recent changes in this area, a basic understanding of Mexico's overall economic climate is necessary.

With the crash of oil prices in 1982, Mexico was forced to abandon import substitution industrialization as a national policy. The economic crisis forced the government to follow the advice of many economists who had long advocated structural changes in the economy.

During the decade of the 1970s and up to 1982, the government's budget deficit and trade deficit were financed with mostly external debt and some domestic savings. Under President Echeverria, Mexico began ambitious capital investment projects financed by the government. This plan of expansion was reinforced by the next Mexican president, Lopez Portillo. Under his administration (1976-1982), great oil reserves were discovered in Mexico. His plan of expansion was based on the assumption of constant high oil prices to finance costly government projects. When oil prices crashed in 1982, Mexico was unable to pay back its loans on schedule, indicating that the financial excesses of the previous 12 years made Mexico's economy highly vulnerable to external shocks. The oil and foreign capital markets were especially responsive to the economic crisis.

The situation faced by the De La Madrid administration in 1982 left Mexico few choices, as dramatic changes were necessary. Alejandro Diaz Landero, an economist who until recently served as an advisor in the Secretaria de Comunicaciones y Transportes (SCT), has explained how transportation deregulation came from the country's overall restructuring plan. According to this plan, the long-term strategy was to correct macroeconomic gaps while working under the economy's budget constraints. Five areas called for immediate attention: (1) to achieve a healthy integration of the economy to international trade trends; (2) to correct the government's finances; (3) to generate monetary stability; (4) to make the foreign debt burden fall within Mexico's economic possibilities without causing censure by the international financial community, and (5) to create conditions favorable for domestic private investment to become the main monetary source for domestic production.<sup>36</sup>

Following these guidelines, the government planned to limit the vulnerability of the economy to external shocks, stop capital flight, control inflation, renegotiate foreign debt, and resume economic growth. However, attaining these goals called for difficult measures such as cutting excess government expenditures, management of domestic interest rates to stimulate domestic savings, application of a stringent money supply policy, correction of relative prices among economic sectors, stabilizing the exchange rate, deregulation of foreign trade, stimulation of efficiency in the domestic production process, and negotiation to change or move foreign short-term debt obligations to the long-term.

By 1989, Mexico had made progress in restructuring its economy. First, Mexico redefined its foreign debt strategy for the short run to free domestic resources to finance productive investment. This implied that in the long run the country could pay no more than the market value of its debt. Second, Mexican officials took an affirmative step in foreign trade integration by joining the GATT in 1986. Third, a fairly successful movement towards diversification of the traditional Mexican exports began. Fourth, officials made corrections in the government's finances by privatizing inefficient parastatal (i.e., state) enterprises and eliminating some government subsidies.<sup>37</sup> Finally, President Salinas de Gortari put forth an economic program to produce relatively low inflation, stimulate growth, and restore public confidence in the economy.

Though Mexico continues to struggle with adjustment and reconstruction of the economy, enough progress has been made to warrant more policies to aid the domestic economy. In essence, by 1989, Mexico began to convert some of its macroeconomic structural changes into material benefits for the industrial sectors at a microeconomic level. The purpose of this effort was to achieve a higher level of sectoral development through implementing new technologies to reduce costs and raise productivity. Moreover, it was expected that these changes would lead to a dynamic industrial framework in which producers, consumers, and market regulators could coexist in a more efficient and productive manner. With this spirit in mind, the Salinas administration deregulated motor carrier transportation.<sup>38</sup>

#### TRANSPORTATION DEREGULATION IN MEXICO

As in every economy, the efficiency of Mexico's transportation system affects all other sectors of the economy which directly or indirectly depend on it. For example, the Central de Abasto Ciudad de México, a trucking hub which functions as the distribution center for agricultural products for the entire Mexico City area, depends on the efficiency of the transportation system. All agricultural products destined for wholesale or retail in southern Mexico must pass through this system. A noticeable increase in transportation efficiency creates an immediate response on this supply network. According to Lic. Ricardo Sanchez Luna, director of operations in the Central de Abasto, significant changes in the supply system could not yet be verified.<sup>39</sup> In contrast, at least one general administrator for a distribution firm operating in the central indicated the rates for cargo transportation have risen appreciably since deregulation.<sup>40</sup>

In the case of Mexico, efficiency in transportation can be understood as the interaction of long-run cost, market demand, and regional need. However, a clear view of the relationship between transportation and the economy may be revealed in another manner. Consider that, in 1989, goods transported by road represented 1.2 percent of GDP, 65 percent of the total value generated in the transport industry, and almost 90 percent of the total energy required by that industry.<sup>41</sup> Moreover, the importance and volume of motor carrier transportation continues to increase. In 1960, 7.5 million tons were transported by road, but by 1988 the figure had increased to 298.7 million tons.<sup>42</sup> This growth in road traffic has not been accompanied by the necessary road maintenance, which has led to regional "bottlenecks," particularly along the U.S.-Mexican border.<sup>43</sup>

The lack of infrastructure growth and maintenance reflects the status of other aspects of the Mexican transportation system. For instance, the country has essentially the same railroad network as during the dictatorship of Porfirio Diaz at the turn of the century (1876-1910).<sup>44</sup> Mexico's 16,000-mile system of railroad tracks has not grown since 1925.<sup>45</sup> Moreover, the country lacks major port facilities comparable to those in New York, San Francisco, or New Orleans in the United States. Consequently, large-scale competition by substitute transportation services is not feasible. This, in part, explains the small number of multimodal transportation firms in Mexico. Three multimodal firms have been controlled by the same families.<sup>46</sup> Given the constraints on the Mexican transportation system, the different modes of transportation have a small elasticity of substitution. Accordingly, they complement each other in the absence of infrastructure necessary to encourage competition. Understandably, the transportation market appears segmented, and, despite deregulation, a significant increase in competition is unlikely until new roads or railroads are built.

### **The Market Structure of Motor Carrier Transportation Before Deregulation**

State regulations restricted transportation markets through a number of techniques: regulatory barriers governing granting of concessions, barriers to entry for firms, restrictions on increasing route capacity, and regulated tariff structures.

Legislation passed in 1940 provided the legal foundation for the structure of the motor carrier transportation system. This law views transportation as a public service, to be operated only with a state-awarded concession. Regulations which created the framework for the motor carrier transportation system before deregulation originate from the Law of General Means of Communication and the Regulation to the Chapter of Exploitation of Highways of the Law of General Means of Communication. The Secretaria de Comunicaciones y Transportes (SCT) enforces transportation regulations.

The regulations established restrictive market entry via exclusive concessions for route corridors. First, SCT granted concessions only to Mexican nationals. Second, cargo transporters had to remain within one of the nine route corridors specified by SCT. Ceilings were placed on the number of tons per kilometer that could be transported on any route. Concessions for new operators to increase route volume were very difficult to obtain because SCT was obliged to consult members of route committees, made up of current holders of concessions.<sup>47</sup> Furthermore, established concessionaires received preference when new route or volume concessions were needed.<sup>48</sup> SCT issued provisional permits to vehicles from other routes only under extenuating circumstances or national emergencies. Customers could not request an increase in capacity on a particular route. If cargo had to be transported across corridors, it had to be unloaded and reloaded onto another truck, or an arrangement had to be made with neighboring concessionaires to allow passage. SCT approval was required for all such arrangements, and any damage caused to the cargo during transshipment was at the customer's expense. As an exception to the general rule, specialized cargo was not subject to route restrictions. Specialized cargo includes household moves, perishables in refrigerated vehicles, large objects on platforms, telephone and electrical equipment, specified chemicals, construction materials, glass products in specialized vehicles, and all unprocessed agricultural products.

Just prior to deregulation, 97 percent of specialized cargo permits were for agricultural products. Industrial manufacturers wanting to operate their own trucks (in private carriage) had to obtain a permit to carry their own cargo exclusively.<sup>49</sup> Exceptions to this regulation occurred under extreme conditions. The Federal Roads Police were authorized to detain and inspect trucks for proper permits or concessions.<sup>50</sup> They ensured that private carriage accounts were hauling cargo that belonged exclusively to the appropriate designated enterprise. Concessionaires and specialized cargo permit holders charged the Federal Roads Police with corrupt practices that subverted the concession principle. Pirate operations took advantage of the corruption, offering services that saved customers up to 30 percent off the official rates.



The Law of General Means of Communication specified a need to combine and coordinate services on every route.<sup>51</sup> The creation of *centrales de carga* (cargo centers), which were associations formed by concessionaires on a route, served this objective. A *central* essentially consisted of an office that coordinated the demand for services and allocated cargo across carriers. The absence of direct contact between users and transporters precluded negotiation of discounts. Each *central* had its own operating regulations, which it drew up at the time of its creation. Some *centrales* used a roll-call system (*sistema de rol*) to match a request for services with the next carrier in line. It is interesting to note that, according to a World Bank survey, users allege that the cargo centers contributed to the decline in quality services because the user was obliged to accept the assigned trucker even with a prior bad experience or even if the assigned vehicle was inappropriate in terms of capacity, age, design, or the driver's experience in handling the product.<sup>52</sup>

The *centrales* at the ports and in border zones were more restrictive because international points of entry are naturally limited in number and serve as funnels for international commerce. As a result, these areas are easier to control through centralization of distribution.<sup>53</sup> A similar roll-call system coordinates the movement of ocean containers, which may be used only for international cargo. Here, Multimodal, which owns no trucks, was the monopoly freight forwarder for all container traffic, with sole authority to assign which trucks would carry containers. Multimodal operates only in ports.

Regulations called for a very limited set of allowable service levels and penalties for non-observance, provisions that further restricted the scope for negotiation between users and providers.<sup>54</sup> Authorized transit times were very generous to truckers: one day for loading, one day for a trip of up to 200 kilometers on paved roads, and one day for unloading. The penalties for delays of 1 to 5 days were a reduction of 5 percent in the rate; for 5 to 10 days, 15 percent of the rate; and for more than 10 days, a 30 percent discount.<sup>55</sup> If cargo was not claimed 48 hours after its arrival, the owner would incur a storage charge.<sup>56</sup> The responsibility of the trucker for damaged or missing cargo was negligible, although the user paid an additional surcharge directly proportional to the declared value of the cargo. In other words, carriage rates based on the value of the cargo did not provide insurance. The user was entitled to compensation of only \$0.35 in U.S. dollars per ton of lost or damaged cargo, based on outdated regulations.<sup>57</sup>

SCT set and adjusted official tariffs according to an approximate cost formula. The official rate structure did not allow for differences based on timeliness and did not change with seasonal conditions. Adjustments were made only on the basis of the overall inflation level and even then inflation was not fully reflected.<sup>58</sup>

There were five rate classes; each had the same fixed component and a differing variable component.<sup>59</sup> The classification of products relied to a limited extent on the risk, the fragility, and the difficulty of handling. High rates often applied to high-valued goods, rather than to the difficulty in transport. There was also a discount of 8 percent on categories of goods that were subject to price controls and a 25 percent surcharge for unpaved road surfaces. The rate contained a provision for large-volume discounts, but SCT had to approve such arrangements, which the carrier would have to publish and make universally applicable. The official rate was not a maximum, but rather the only price within a product category that could legally be charged.<sup>60</sup>

Government-owned enterprises were legally entitled to a legislated across-the-board rate discount of 50 percent on their shipments. This is significant when you consider that their parastatals (CONASUPO/grains, SIDERMEX/steel, and PEMEX/petroleum) continue to be the dominate users of trucking services from ports. However, in practice, Mexican motor carrier operators did not offer the discount.<sup>61</sup>

Truck manufacturing has been heavily protected through import restrictions. This protection significantly raised the domestic price of new trucks, with an indelible and profound

effect on the industry. The prohibitive cost of replacement equipment led to the deterioration and reduction of vehicles in the national truck fleet.

The industry as a whole was therefore adversely affected. For instance, research conducted by La Secretaria de Comercio y Fomento Industrial (SECOFI) indicates that 15 families owned the majority of the concessions and divided the routes among themselves.<sup>62</sup> Another effect of these policies was that truck owners that did not hold a concession would pay between 15 and 20 percent of their revenues to concessionaires on an ongoing basis for the right to affiliate themselves so that they could operate legally on a route. Entry restrictions provided licensed truckers with little motivation to improve their services, especially since *centrales de carga*, not the users, chose the drivers to haul cargo and little penalty was imposed on drivers for delays or damaged cargo.

From a more macroeconomic perspective, following the 1983 economic crisis, the transportation industry as a whole experienced a decline in demand. During this same time period, however, demand for motor carrier transportation increased in the segments related to imported goods and value-added export goods (*maquiladora* industry). Nevertheless, because of the recession of 1982-86, transportation firms that stayed in business did so at the expense of not replacing their equipment. Instead, competition became more restricted among the different concessionaires.

By June 1989, insufficient rate increases in the industry over the last 15 years had led to a 51 percent loss in the profit margin per ton transported.<sup>63</sup> Yet, the number of transportation firms increased. In 1980, there were 2,518 operating transportation firms in Mexico; the number had jumped to 2,827 by 1983 and 3,149 in 1988.<sup>64</sup> While the industry was adversely affected by the financial woes of the overall economy, the financial woes were not enough to deter newcomers. This increase in newcomers is impressive in light of the existing barriers to entry. An informed opinion is that most new entrants were attracted by increasing demand for transporting foreign goods into Mexico from the U.S.

#### Deregulation of the Motor Carrier Transport Market

The Salinas administration deregulated the industry in July 1989 because they recognized that motor carrier productivity would increase under deregulation. The situation was such that demand for motor carriage was high, most firms were small, and illegal operators abounded in the market. Thus, the legal framework was modified so that domestic prices could be negotiated at any level below the maximum regulated rate. This modification encouraged competition by abolishing fixed rates. This deregulation would allow the domestic market to adjust to international competition. From the Mexican perspective, therefore, domestic firms needed adequate equipment to survive in a new competitive climate. Nevertheless, at this point, the Salinas administration realized that competition by substitute modes was not feasible on a large scale because there was not an adequate transportation infrastructure. Economic planners were aware of the infrastructure deficiencies at ports<sup>65</sup> and, as mentioned earlier, that the railway network had not grown since 1925.

Mexico began deregulation of the motor carrier transportation system by minimizing the barriers to entry. By presidential decree, the government established that all Mexican firms can operate anywhere in the market. All price restrictions were lifted. Regional registration of load transportation is only for statistical purposes.<sup>66</sup> Only SCT has the authority to allow new entrants into the market. Route committees (lobbies) do not participate in any way in this process. Furthermore, *centrales de carga* will be restructured in order to provide essential services to operators.

A model suggested for the *centrales de carga* is that which is already in place in bus terminals. The bus terminals are privately owned and provide services to bus lines and their passengers. The services range from terminal space for ticketing to restroom facilities, souvenir



shops, and restaurants. In this way, bus terminals can provide low rental fees, which allow lower ticket rates and streamlined service. The terminal is able to make a profit by leasing space in the lobby areas to businesses providing passenger services. In effect, ticket prices are being partially subsidized by the terminal operators.<sup>67</sup> By providing comparable service to motor carriers, the *centrales de carga* may assume a competitive role in the transportation services market.

Illegal operators may now obtain their permits according to the type of service they have been offering. Administrative franchising procedures are decentralized regionally. Private carriers can transport products that belong to others, even under long-run contracts. Private carriers can function as for-hire carriers as well. On January 20, 1989, a regulation was promulgated allowing *maquiladora* operations to haul products in both directions, which may in effect enable them to become motor carriers. This important change was made possible under the constitutional restrictions when the Finance Ministry, by official letter, declared *maquiladoras* to be Mexican, not foreign, companies.<sup>68</sup> Importation of replacement equipment is allowed under modified regulations.<sup>69</sup>

Given the history and infrastructure development of the transportation system in Mexico, the country has paid primary attention to the trucking industry. From a very regimented and controlled sector, Mexico developed a regulatory structure that could produce, in a relatively short time, a dynamic surface transportation system for cargo shipments.

#### **For-Hire Carrier Concession Application Procedures**

Today in Mexico, there are few restrictions for a Mexican company to become a for-hire carrier. The concession is given by the *Secretaria de Comunicaciones y Transportes*, in the state offices of the SCT. Applications are made in the state of residence of the applicant.

The concession application is made only once and is good indefinitely, but an annual renewal fee of 75,000 pesos (U.S. \$27) is charged. To apply for a concession, individuals must provide (1) two copies of the application and declaration of physical state of each vehicle to be used; (2) the receipt of sale, lease agreement, or title of the vehicle; (3) Federal Vehicle Registration or the corresponding application; (4) two forms of personal identification; and (5) payment of 100,000.00 pesos (U.S. \$35).<sup>70</sup>

For existing companies just entering new markets or for new transportation firms, all the previous requirements apply plus a copy of the company charter, which specifies that transportation of goods is part of normal business operations or that cargo transportation is the main activity. This charter must also include a clause of "foreign investment exclusion." Proof of legal right of representation by the individual making the application must also be provided.

Rural cooperatives may also apply for permission at their local SCT office, following the same requirements as corporations. The forms are given out free at the 31 SCT state offices in every state capital or in the branch offices located in other major cities. The applicant must have the necessary equipment for the job. For example, the owner of a semitractor must have a tanker that meets basic safety standards to obtain permission for chemical transport. The concession must be granted within 15 working days and is nontransferable. The primary operating requirement is that the equipment pass periodic safety inspections.

#### **Motor Carrier Insurance Requirements**

In general terms, the insurance system in Mexico is still under development. The only required transportation insurance in Mexico is for commercial passenger transportation. The amount of damages and liabilities that can be claimed depends on the state in which the accident occurred and also on the kind of highway on which it occurred. On federal highways within the Federal District, there is actually double legal coverage.

The insurance question in motor carrier transportation is based on single company coverage, double coverage, and no coverage. Most users of for-hire carriers insure their products themselves. The product is not insured by the motor carrier's policy. It seems more cost effective now that users buy their own insurance. As the system stands, however, most for-hire carriers offer the option of insurance on any shipment, and thus quote two prices for the user, insured and uninsured. The Mexican government hopes that for-hire carriers will simply stop offering, or be forced to stop offering, service that is uninsured. This will protect the individual for-hire carrier that is now entering the market. A large firm will not be financially threatened by most accidents and mishaps, but an uninsured single for-hire carrier new to the market will have reason to worry. An SCT official commented that it would be more advantageous for a carrier to obtain coverage with an insurance company than to risk bankruptcy from an accident.<sup>71</sup>

### Multimodal Transportation Deregulation

Multimodal transportation was also deregulated to provide greater efficiency in cargo transportation to make possible the practice of "just in time" inventory. Prior to deregulation, a select few companies could participate in multimodal transportation. Service was regimented such that a multimodal company could not contract certain carriers for cargo services. Each carrier in any segment of the service transaction had to be approved to carry multimodal-contracted cargo. Multimodal firms could only provide services in certain ports, airports, and *centrales de carga* as determined by SCT.

Deregulation has made a number of changes in the multimodal market.<sup>72</sup> Permission to provide multimodal transportation services is given by SCT to Mexican nationals who meet the proper requirements, which differ from those of for-hire carriers only in scale and demonstratable capacity. The concession is reserved for Mexican-controlled companies. That is, with the approval of SCT, foreign multimodal companies may provide international service with connections in Mexico by contracting with a Mexican transportation company. One example of this is Federal Express, Inc., which serves Mexico and has offices in Mexico City as part of a joint venture with Mexican investors.<sup>73</sup> Today, any foreign multimodal carrier can contract with any for-hire Mexican carrier.<sup>74</sup>

### U.S.-MEXICO TRADE AND MOTOR CARRIER TRANSPORTATION

Motor carrier transportation is the linchpin of bilateral trade between the U.S. and Mexico. Considering the amount of trade between the United States and Mexico, many Mexican transportation standards of operation are predicated on the requirements for doing business with the United States. A Mexican for-hire carrier must meet two conditions to effectively conduct commerce in the U.S.-Mexico market: obtain insurance on the loaned American equipment used to carry cargo and possess a concession to bring in that equipment.<sup>75</sup> From the perspective of a Mexican for-hire carrier, the most effective way to meet these conditions and obtain an interline agreement to do business with the U.S. is to join a cooperative or start a cooperative.<sup>76</sup>

In an interline agreement, a U.S. company agrees to use only one Mexican firm or cooperative for its transportation needs in Mexico. Agreements made for equipment transfers between companies permit greater efficiency. The conditions of the equipment exchange are stipulated in the interline agreement, which assures compliance with safety guidelines and the return of the equipment to the owner in reasonable condition.<sup>77</sup>

In the area of insurance, trade talks between the U.S. and Mexico have addressed the problems associated with the high costs of doing business in Mexico; the legal recourse available to insurance companies in the U.S. does not exist in Mexico. Federal police estimate primary damage. Inaccurate estimates of damage by the police seriously complicate efforts to cover the cost of repair. A claimant's compensation rarely compares with the actual cost of the accident. These inaccurate estimates should be rectified by a new follow-up enforcement policy.

The question of uninsured loads and civil liability is very important. Current law covering the compensation due a plaintiff in a civil liability case is very outdated. Insurers cannot get reasonable compensation in Mexican states' civil courts. If the civil statutes reflected contemporary needs, lower insurance rates would reduce operating costs for the investor and the customer.

Despite the advantages, few interline agreements exist. Complications, due in part to different cultural practices between companies, stifle compromise.<sup>78</sup> Even at this stage of mutual dependence, observers and participants alike point to cultural differences as a major obstacle to improved trade. Language barriers aside, the "nuts and bolts" technique of doing business are often in conflict. One example cited was the question of financial position. Most U.S. businessmen are accustomed to open recordkeeping, such that the financial position and viability of a corporation can be evaluated while considering investment possibilities in Mexican companies. This practice is scarcely heard of in Mexico and leads to animosity between negotiating parties.<sup>79</sup> Another example of problematic differences is the trailer exchange. The inability of Mexican for-hire carriers to guarantee the condition of the trailer used and the time allotted, by law, for the return of the trailer to the U.S. border has made most U.S. firms reluctant to conduct business in Mexico. The change of attitude on the part of the national government has had a minor effect on these conditions, though increased enforcement of existing regulations is expected to alleviate the problem.

Authority to import a carrier loaded with cargo for the purpose of transportation of domestic or foreign goods on federal highways is granted by the SCT in the regional office. For an independent for-hire carrier, separate permission must be granted for every transaction and shipment in a foreign container. Since the permit process takes several days, independent truckers are at a considerable disadvantage to those operators belonging to a cooperative.<sup>80</sup>

A cooperative is a commercial association of operators that own their own equipment. The association is free to make transportation contracts with firms. Many major corporations retain the right to select certain drivers within the cooperative. Permission for the carrier to be imported (now titled to a Mexican firm) is requested and granted to the association. The cooperative is granted the carrier import concession on a total number basis. That is, the cooperative has the right to have a certain number of foreign trailers in the country at a given time.<sup>81</sup> Permission need not be requested on a per-trailer basis, which minimizes importation delays and ensures their competitive advantage.

Interline agreements curtail empty backhauling. A for-hire carrier has the right to maintain the trailer in Mexico for thirty days before it must be returned to the U.S. He is prohibited from cabotage with that equipment, although violations of this regulation are known to exist.<sup>82</sup> If a for-hire carrier is able to obtain cargo destined for the United States, he may collect a fee for services rendered within Mexico. The trailer and its contents are then turned over to a customs broker, freight forwarder, and a short-haul carrier for transshipment to the U.S. From the point of U.S. entry to the final destination, freight is charged and collected by the U.S. company.<sup>83</sup>

The basis for obtaining this kind of concession was published in the Official Gazette. All applications are registered in a two-book file.<sup>84</sup> The title of the concession contains the following information: the regulated freight; the methods of providing service; the rights of the users; the obligations and rights of the carrier; sanctions in the case of failure of compliance; the class of service; the number of units whose use is provided for in the concession; the capacity; the weight; and other specifications. Note that in the event that a concession is revoked, the beginning date of the concession cannot be postponed during the time of suspension. Additionally, the law states that any driver can freely visit a service center or *central de carga* to make use of the facilities either as a member of a corporation or as an independent.<sup>85</sup> SCT will coordinate transportation in commercial, agricultural, and industrial zones of local municipalities. Failure to comply with two contracts will be cause for revocation of the concession.



## RAIL TRANSPORTATION

Liberalization of rail services has resulted in increased quality and volume of train service. Interchange agreements have been reached between U.S. rail companies, including Santa Fe Railroad, Southern Pacific, and Union Pacific, and the Ferrocarriles Nacionales de México (FNM).<sup>86</sup> These interchange agreements have roughly the same intent as the interline agreements in the trucking sector. American locomotives currently operate in Mexico.<sup>87</sup> U.S. railroads work under a statutory time constraint. A locomotive or rail car may be kept inside Mexico for 30 days and may not be used for domestic cabotage, although violation of this regulation occurs frequently.<sup>88</sup> New agreements that will permit more integral relationships between the railroads in the area of investment for infrastructure are anticipated.

The link between investment and liberalization is clearly demonstrated in the rail transportation sector. Though the condition of selected tracks is adequate, large-scale growth in intermodal transportation will be impossible without substantial infrastructure investment. Due to the increasing role of intermodal transportation in world commerce, the investment to enable double-stack container services will have to be made if Mexico is to earn its share of increased bilateral trade. Under more competitive trading conditions, an inefficient multimodal transportation system will limit the competitiveness of Mexican production.

In addition, a variety of other agreements are currently being carried out. Interested foreign investors are making efforts to repair and replace worn Mexican equipment so as to improve high-volume traffic to the United States. Logistical support, in the form of tracking methods to speed the return of equipment to U.S. companies, has been offered.<sup>89</sup> The future of such support services depends on another form of foreign investment in communications--telecommunication systems.<sup>90</sup>

## ACCOMPLISHMENTS

For Mexico, 1989 proved to be a watershed year in the process of motor carrier deregulation and improved Mexican-U.S. relations facilitating the movement of trucks between the two countries. In general, Mexico is going through a process of evaluating its economic position relative to the rest of the world. The present Mexican administration is also more open to an exchange of ideas with those inside and outside the government. This renewed interest in exploring new ways to bring Mexico out of its economic stagnation is exemplified by the overall economic restructuring the country is going through. Motor carrier deregulation and bilateral trade facilitation agreements are only two components of a larger economic reform movement.

The national economic agenda started by President De La Madrid has been continued in pragmatic terms by President Salinas de Gortari. The modernization strategy in motor carrier transportation included several aspects of importance such as making *centrales de carga* a more effective service for motor carriers, increasing rural agricultural access to transportation, refurbishing the federal road system, creating a finance and credit system for all users, and legislating a free motor carrier market. In 1989, the SCT held three public meetings jointly with the U.S. Department of Transportation to address the concerns of parties affected by the proposed motor carrier deregulation.<sup>91</sup> The meetings sought the input of users, operators with concessions, concessionaires leasing their operating authority, and illegal operators. In these public discussions, many frustrations were aired and discussed.<sup>92</sup>

Deregulation closely followed the overall guidelines of the National Development Plan 1989-1994. The first step was new legislation to update the legal framework for motor carrier transportation and to redefine the role of multimodal transportation in the national transportation network. The key aspect of this process was encouraging the modernization of motor carrier firms. Therefore, revisions were made to redefine the role of *centrales de carga*. In addition, routes were eliminated to encourage competition among firms, and new financial lenders were

asked to provide assistance. The government committed itself to provide farmers with better transportation via allowances for larger vehicles. Another important legislative initiative was the complete elimination of price controls. From an administrative perspective, many nonmarket obstacles to competition were eliminated. For example, simplification of the application process for for-hire carriers entering the market--users are now free to contract any for-hire carrier for any price--and decentralization of government services have all made a substantial difference.

The effect of deregulation has been mixed. The immediate effect of progressive legislation has been an increase in the number of operators. The number of operators in the motor carrier market increased from 65,313 in 1988 to 119,714 in 1989. This represents a 55 percent increase in the number of operators, the bulk of which were formerly associated with larger companies and illegal operations.<sup>93</sup> However, the problems of limited insurance for cargo and permits for temporary importation of carrier equipment have reduced effective competition.

Finally, the process of deregulation has been possible because of the open political sentiment in the country. Now that the initial steps have been taken to change the legal framework of the domestic motor carrier transportation market, it is essential to implement the new legal regime in light of the requirements of an integrated transportation system and the changing conditions within the economy. These actions should be complemented by measures geared to resolving the problems of scarce resources and the high cost of capital investment associated with equipment acquisition and maintenance. With regard to transport services to small rural communities, the effects of deregulation in other countries indicate that such communities can organize to retain their services.

An important dimension of reform has been interest in increased trade with the U.S. In January of last year, Mexico decided to eliminate the exclusive nature of draymen and federal public service carrier companies that perform short-distance towing and hauling services for border transactions. Opening up this business to competition will increase the efficiency of border exchanges. This change marks considerable progress, since major "bottlenecks" had been reported in this area. Another key decision that will bode well for future relations is recognition by the Mexican government of the right of maquiladoras to own and operate their own fleets to carry their own supplies and finished products on federal highways. Mexico also decided to allow 40-foot trailers into Mexico to eliminate inefficient cargo exchanges that caused costly delays in transshipment. Further accords were reached in customs procedures, with the result that basic customs services will be more efficient and innovative solutions such as line release will be expanded to a wider range of possibilities.<sup>94</sup>

## CONCLUSIONS

An open transportation system between the U.S. and Mexico remains a priority for both countries. Recent Mexican policy changes have favored greater economic integration and cooperation. However, many issues remain unresolved. From the U.S. standpoint, access into Mexico remains the most prominent issue for discussion.

The U.S. has managed to streamline the process of establishing operating authority for Mexican carriers in the U.S. border commercial zones. The single certificate of registration grants this limited operating authority and attests to the carriers having obtained the required levels of insurance, complied with U.S. safety standards, and paid road taxes. The national commercial driver's license standard also simplifies enforcement and ensures proper skills for operation of motor vehicles by Mexican drivers in the U.S. Since Texas joined MCSAP in 1989, a consistent safety regime is now in place along the entire U.S. border.

This regulatory evolution has proven beneficial to both countries. For Mexico, the registration process has been simplified and expedited. This simplification has also allowed more effective and efficient regulation of Mexican trucking activity in the U.S.



With increased enforcement capabilities, and increasingly sophisticated Mexican equipment, American concern over unsafe Mexican trucks has been reduced.

While the U.S. has largely completed its own regulatory reform, it will benefit from deregulation in Mexico. More compatible Mexican access regulations, both cross-border and into the interior of Mexico, are prime U.S. objectives. The legal clarification covering maquiladora production needs was a notable accomplishment for bilateral relations. More extensive access for U.S. carriers is being considered but is likely to be shaped by the needs of domestic constituents.

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## Chapter 5. Customs Operations and Procedures

### INTRODUCTION

This chapter focuses on the responsibilities and procedures of the United States and Mexican customs services operating on the 1,200-mile border between Texas and Mexico. The purpose of this chapter is to identify and assess delays in processing transborder commercial shipments. Certain measures have already been implemented to alleviate these problems, but often solutions have created an entirely new and unanticipated array of difficulties. An attempt is made to understand the problems with an eye to recommending some responsible and effective policy initiatives so as to reduce impediments to expanded commercial trade.

Historically, the principal mission of the U.S. Customs Service has been to administer laws applicable to foreign merchandise entering the country and to collect duties and taxes. An intrinsic part of this responsibility is enforcement of those laws and regulations concerning illegally importing goods, evading payment of duties and taxes, or subverting import restrictions or prohibitions that are applicable to certain categories of foreign goods. Control of persons and vehicular traffic passing across borders has increased in importance since the post-World War II expansion of international travel, and, in the last decade, the interdiction of narcotics has also become a priority.

This study concentrates on the three ports of entry at Brownsville/Matamoros, Laredo/Nuevo Laredo, and El Paso/Ciudad Juarez. Without ignoring the significance of the remaining eight U.S. Customs ports of entry, it is generally felt that these three ports are indicative of the overall process. Laredo is one of the largest ports of entry in the United States. El Paso is a vital link in the maquiladora trade that represents the vast majority of this port's commercial traffic. Brownsville is unique because it is a multimodal port of entry with rail, maritime, trucking, and air freight services available. For these reasons, field research was conducted exclusively at these three ports, with cursory visits to the Port of Houston and Dallas/Fort Worth International Airport for general information regarding the U.S. Customs process. Much of the following is based on personal observations made during these on-site interviews. There are two U.S. Customs districts along the Texas/Mexico border, one headquartered in El Paso and the other in Laredo. The Port of Brownsville is in the Laredo District. For reasons of clarification and accuracy, the Mexican Customs operation is referred to as the aduanas.

The research group gathered information over eight months by conducting on-site and telephone interviews with customs officials and customs brokers. The body of the chapter is divided into three sections: process, problems, and accomplishments. A description of the procedures and systems encountered when importing or exporting is essential to understanding the potential for delay at any point along this complex process. Naturally, problems have developed as transborder trade has increased. Both sides are cognizant of these bottlenecks and have instituted changes, with mixed results. Each section of this chapter contains an extensive discussion of the most salient issues.

### PROCESS

This section provides an overview of the actual procedures and main actors, both human and mechanical, involved in moving goods across the border. It is not intended to replicate the step-by-step account of the customs process published by the U.S. Customs Service, but rather to introduce the main features of the system to the reader.<sup>1</sup>

Figure 5.1 U.S. Border Stations Along the Southern Border - GSA Region 7



\*proposed

Source: U.S. General Services Administration Region, Fort Worth, Texas



The first line of contact with customs is the clearinghouse, represented by the entry officer. The importer's documentation is entered by the entry officer through a number of different methods. Those carriers or brokers possessing the computer capability can use the Automated Manifest System (AMS). This system allows the carrier to transmit, via telex, a manifest of goods to be imported. Customs then chooses to send the information to Inspection and Control for an intensive physical examination; call in an import specialist (if there is a question regarding valuation or document preparation); or approve preclearance after review of the entry documents submitted by the shipper or broker (if it is low-risk cargo or a respected importer). If suspicions are raised due to country of origin or there is a question of illegality with regard to content, the CET (Contraband Enforcement Team) may be called in. If and when the documentation is processed and the shipment cleared, its release is issued, and the shipper or the designated broker has ten days from the date of arrival to complete and submit an Entry Summary to customs. If the carrier is not equipped with AMS, then the paperwork is submitted upon arrival at the point of entry, and the same process takes place.

Throughout the process, the customs office may indefinitely hold merchandise at its discretion that is not properly documented or does not pass inspection. Occasionally, cargo that was previously cleared may be later recalled and assessed additional duties or fines. To protect customs against nonpayment of duties, a system of bonds has been established. An importer or broker is required to post a bond directly or through a surety company. These bonds can be of three kinds: a single transaction bond designed for a one-time transaction, the continuous bond which is valid anywhere in the U.S. and must be posted for a minimum of \$10,000, or a cash bond that will be fully refunded should a lien not be applied.<sup>2</sup>

Imports into the United States fall into two categories, formal entry and informal entry. Informal entry is generally for personal use and does not require a bond backing. Formal entry covers other goods imported for resale. It should be noted that informal entry of goods into the United States can be declared when the value of items for import is \$1,250.00 or less, thereby not requiring a broker. However, formal entry filing can be demanded by customs for anything at anytime, with what customs considers just cause.<sup>3</sup> The use of the broker and formal entry procedures ensures that items can be recalled for inspection at any point within a 30-day period, while remaining the responsibility of the broker. A new 19 U.S. Code Section 1641 enables customs officials to exact pecuniary fines, as well as refuse dock space to importers and brokers that repeatedly furnish inadequate or inaccurate information.<sup>4</sup>

A major component of the U.S. Customs Service's responsibility at the Mexican border is inspection of import documents for cargo and carrier compliance with U.S. Department of Transportation (DOT) and U.S. Interstate Commerce Commission (ICC) regulations. Inspectors routinely check all drivers of all commercial vehicles for proof of liability insurance.<sup>5</sup> The enforcement of liability insurance laws is the only aspect of safety standards that customs enforces; all others remain the responsibility of the state of Texas and the DOT. If Mexican trucks are found to lack the proper insurance paperwork, they can be sent back to Mexico without even gaining access to the import lot.

Classification and appraisement, when ad valorem rates of duty are applicable, are the two most important factors affecting dutiable status. All goods imported into the United States are subject to duty or duty-free entry in accordance with their classification in the Harmonized Tariff Schedule. The schedule is divided into various chapters and sections distinguishing merchandise in broad product categories. The United States joined this internationally recognized system of classification in January 1989. Mexico's move toward complete compliance with the Harmonized Tariff System, in July 1989, has begun to eliminate difficulties between the two countries associated with classification, thereby further expediting transborder trade.

When exporting to the United States from Mexico, exporters must comply with the acuerdo de divisas. This is a commitment between the seller and the Banco de Mexico (Central

Bank), allowing 90 days for the seller to exchange U.S. dollars from the sale of goods in exchange for Mexican pesos at the market rate.

The Mexican export/import documents or pedimentos are alike except in color; the pink document is necessary for foreign currency exchange. The Mexican seller, after clearing the aduana, will have a pink pedimento with which he may go to the Banco de Mexico for pesos. When importing into Mexico, the bank may allow the Mexican buyer to keep a limited amount of dollars for U.S. goods to be purchased as spare parts related to the original purchase.<sup>6</sup>

### **The Role of The Customs Broker**

A customs broker is an agent for the importer and exporter and serves as a liaison between these clients and various other actors in the shipping process. In the United States, customs brokers are licensed and regulated by the U.S. Treasury Department and are trained to provide basic services for the importer and exporter. For the importer, they will

1. prepare and file entry documents;
2. obtain and post necessary bonds;
3. deposit U.S. import duties on behalf of their importing clients;
4. secure shipment releases from U.S. Customs; and,
5. arrange shipment delivery according to each client's instructions.

For the exporter, they will:

1. prepare a shipper's export declaration as a recording document provided to the U.S. Department of Commerce and
2. process export licenses for certain items regulated by the federal government, such as firearms and sensitive technology.<sup>7</sup>

Mexican customs brokers are licensed and regulated by the Secretaria de Hacienda y Credito Publico.<sup>8</sup> The requirements for becoming a Mexican customs broker have recently been changed. Previously, to obtain a Mexican customs broker's license, the applicant had to be a Mexican citizen, have a university diploma, pass a written exam, and meet certain financial requirements. These criteria have recently been amended: one must be 21 years of age, meet a \$50,000 financial requirement, and have 25 customers within a 30-day period.<sup>9</sup>

### **Computerization**

The U.S. Customs Service has been very quick to respond to technological advances that have taken place in the area of database management and analysis. The Automated Commercial System (ACS) was developed to meet the need to establish an integrated computer network for the U.S. Customs Service and went on line February 1, 1984. It is a comprehensive computer tracking system. Anyone who moves or releases cargo, makes entries, files protests, incurs penalties, faces a seizure, pays duties, exports merchandise, or conducts any other business may encounter ACS. It permits on-line query of virtually the entire database and provides for printing over 100 different reports on demand.<sup>10</sup>

The Automated Broker Interface (ABI), established in 1985, is designed to facilitate imports and increase efficiency of entry procedures, with the ultimate goal of a paperless process in the future. The customs broker may submit, via the system, a form 3461, complete with pertinent import information. The system then evaluates the document for the valuation of duty, country of origin, errors in transcription, and other specific data regarding content, valuation, etc. The shipment can then be sent down the same line as the AMS. At any time, however, customs officials or the system itself may randomly flag a shipment for inspection, even though all other system criteria have been met.<sup>11</sup>

The EDIFACT system is another aspect of Custom's continuous effort to "go paperless." It is simply a computer language used worldwide for invoices and manifests of all kinds. Customs employs the system for its own documentation and, in a sense, places its operation in a global context by doing so.<sup>12</sup>

#### Line Release

This system is designed to allow quick clearance and tracking of low-risk, highly repetitive shipments through the use of personal computers and bar-code technology. The key to the line-release system is a 14-character bar code that contains information necessary to uniquely identify a routine import transaction. The bar code consists of four elements, and is called the Common Commodity Classification Code (C4). The first 4 digits of the bar code identify the shipper or manufacturer of the merchandise. The next four characters identify the importer of record that has assumed responsibility for the importation. The next three characters identify the entry filer, usually a broker. The last three characters, assigned by Customs headquarters, identify the commodity. To release merchandise, Customs reads the bar code into a personal computer, and verifies that the bar code matches the invoice data. The release data are transmitted to ACS, which establishes the amount owed to Customs by the shipper. ACS provides the broker with release information.<sup>13</sup> All this documentation should be sent ahead of the cargo shipment in order to take full advantage of the system. To qualify for line release, the C4 commodity must have a history of invoice accuracy, be free of enforcement concerns, such as FDA certification, and be selected by local customs districts on the basis of high volume and low risk. The system is, in fact, the exception along the border, rather than the rule.

The Mexican entry operations have become significantly more automated. Mexican Customs streamlined the entry procedure to four steps so as to move traffic more smoothly across the border. Full computerization is now in effect for the entire border, including Mexican brokers, as well as customs. The system includes broker/customs connection and has contributed to substantial reductions in delayed shipments.<sup>14</sup>

The new system, implemented at Ciudad Juarez in November 1989, includes a cassette-like computerized entry filing program. This program registers entries for statistical purposes and transmits to an adjoining station inside the customs yard, a "red-light/green-light" response to the input data. This entry information is simultaneously sorted by type of operation, number of incidents related to improper documentation, and broker/shipper identification. Based on this set of criteria, the shipment is either released or marked for intensive examination. The second station in the import lot then presents the shipper with a bill for the merchandise. If the primary station has randomly flagged the cargo "red," which occurs approximately 30 percent of the time, customs will perform an intensive examination. There is no specified charge for inspection, but the "Confederacion de Trabajadores Mexicanos" (CTM) charges a loading and unloading fee.<sup>15</sup> Once the search is completed, the carrier presents the verified documentation at the exit gate and is free to leave.

The vast majority of rail shipments are sealed and cleared from departure to destination, without ever stopping at the border. For this reason, this mode of transportation is a minor issue with respect to customs operations. All incoming rail cars that are not precleared are sealed by customs with a holding seal at the bridge and are subsequently placed on a holding track until the broker presents the paperwork.<sup>16</sup> At El Paso, the majority of the rail cars are precleared, as they serve the maquiladora industries in Mexico. Customs officials do not permanently staff the crossing but go to the tracks when necessary.

The rail crossing at Laredo is in operation 24 hours a day. It is operated by the Texas-Mexican Railway Company, which is owned, in part, by the Mexican government. An agreement exists with the Ferrocarriles Nacionales de Mexico (FNM) for northbound traffic to travel from 12 a.m. - 12 p.m., and for southbound traffic to travel from 12 p.m.-12 a.m.<sup>17</sup>

In Brownsville, with respect to the rail crossing, the Union Pacific conducts operations from 6 a.m. to 6 p.m., and Southern Pacific conducts operations from 6 p.m. to 6 a.m.. In El Paso, trains arrive in the evenings, with a "train manifest" that is reviewed by an on-hand customs agent. The health and safety of the agent during the physical examination of rail cars is of major concern.<sup>18</sup> Logistical problems in arranging for off-loading rail cars creates delays and additional manpower requirements.

## **PROBLEMS**

This section discusses some problems that occur all along the border that contribute to slowdowns in transborder commerce. Common sources of delay are found in the implementation and administration of the ABI and line release programs. Two other contributing factors to delays are the lack of sufficient staffing and the inadequacy of infrastructure.

### **Automated Broker Interface**

The complaints concerning the ABI system are concentrated in two main areas, with cost being most important. The start-up costs involved are very high, and the anticipated returns on that investment are not readily apparent. The brokers feel that, in the name of efficiency, they have been delegated a task that should be handled by customs agents.

The Miles Group, Inc., of El Paso, estimates that its start-up costs were approximately \$250,000, an amount that no doubt puts the system beyond the reach of many smaller brokers. What the system does provide is one-day response time of broker questions to customs, as well as the possibility of paying amassed customs fees in one lump sum. In El Paso/Ciudad Juarez, there are 479 "Twin Plant" Accounts, with ABI participation of 83.7 percent.<sup>19</sup>

Complaints were registered by brokers in Brownsville regarding the ABI system, echoing previous complaints that "ABI turns brokers into the administrative branch of the U.S. Customs Service."<sup>20</sup> In Brownsville, the vast majority of brokers are on the ABI system.

Similar complaints were voiced by brokers at other ports of entry. Brokers in Dallas commented on the huge investment required to become a part of the ABI system. With increased automation and correspondingly large capital outlays, the small broker could very easily be forced out of business.<sup>21</sup> Because of the complex nature of the system, it is the U.S. Customs Service that is responsible for updating and maintaining the computer software of those brokers who are part of the system.<sup>22</sup>

Automation is an attempt to modernize an impractical system. Not long ago, before the advent of the current unwieldy system, brokers and customs agents were present at the shipment's arrival, and the goods were received, cleared, and released almost simultaneously. Although this old system was more efficient and less time consuming, the vast increase in transborder trade has put an end to the days of more personalized service.<sup>23</sup> There is hint of nostalgia in these comments. Brokers no doubt feel threatened by automation, but it is obvious that automation is here to stay and any disadvantages that stem from the depersonalization of the process will ultimately pale in the face of efficiency gains.

### **Line Release**

At the El Paso/Ciudad Juarez crossing, the two lanes that have been set aside for line release are often devoid of traffic, while long lines form in the other four lanes. Although line release is a great advance in expediting border crossings, these empty lanes indicate that the full potential of line release is yet to be realized.



The Miles Group of El Paso served between 600 to 700 clients in November 1989, of which only 41 had been approved for line release. Of the nearly 10,000 crossings of these clients in that same month, only 996 passed with line-release authorization.<sup>24</sup> The problems with the system can be traced to two general areas. First, any shipment that may involve another agency, such as a truckload of produce that needs to pass a Food and Drug Administration (FDA) or U.S. Department of Agriculture (USDA) inspection, is immediately ineligible for line release. Secondly, U.S. Customs originally set the limit at three for the number of commodities per truckload to qualify for line release. This number has since been increased to six.<sup>25</sup> General Electric may often have as many as 20 commodities in a given truckload crossing the border from its maquiladora operation in Ciudad Juarez, which immediately disqualifies this shipment from line release. This eliminates the advantage gained in attaining line-release status. Line release, as it is being administered, is better suited for one load of bricks than a series of trailers with multiple product loads.<sup>26</sup> Line-release advantages are also compromised by drug enforcement efforts. As of February 1990, 40 percent of all shipments were being flagged and sent to secondary inspection in El Paso. Some high-risk products, such as Mexican pottery, are subject to 100-percent inspections for drugs.<sup>27</sup> This concerted effort seen along the entire border lessens the advantages that line release and "super booths" have brought to transborder shipments of merchandise.

### Infrastructure

Mexican Customs in Ciudad Juarez creates an additional bottleneck in the system. This is mainly due to the fact that there is only one exit gate at the customs yard. In addition, drivers are forced to get out of their cabs to present documents, which could be better facilitated with a super booth similar to that in El Paso. There is little question that, with time, the system will become more efficient.

At Brownsville, there is dock space for only 14 trucks. The import lot is so small, however, that eight trucks would not be able to maneuver into and around the lot. For this reason, a remote inspection station, called a Centralized Examination Station, is used.

### Staffing

The recent freeze on hiring at U.S. Customs (lifted in October 1990) made it impossible to counter the negative effects that inadequate facilities, increased traffic, and tighter security have had on the speed and efficiency of transborder trade.

Import specialists are customs agents that specialize in documentation review relevant to their area of expertise, such as toys and games, textiles, or petrochemicals. They look for products coming in under quota restrictions, trademark violations, or FDA and USDA bans. Until recently, import specialists could be found at each port of entry, but they have now been centrally relocated to the district office at Laredo. The relocation of all import specialists away from the individual ports to a central location in Laredo has contributed to inefficiencies in the customs system.<sup>28</sup> If there is a problem that cannot be solved over the telephone, brokers in Brownsville must travel to Laredo to settle the dispute. El Paso, as district headquarters, is not affected by this move.

### ACCOMPLISHMENTS

Mexico's accession to the Generalized Agreement on Tariffs and Trade (GATT) in August 1986, the virtual elimination of import licenses and permits, and the substantial and recent reduction of tariffs signal Mexico's commitment to entering the international trading community and expanding transborder trade. The fourth meeting of the border transportation work group agreed "to continue with the joint programs to upgrade the operation of customs services on both sides of the border and recommend the expansion of the maquiladora pilot sealing program throughout the border area. These programs should expedite the clearance of trailers that carry



maquiladora goods."<sup>29</sup> This statement assures continued cooperation but will not guarantee that any but the biggest and wealthiest companies can participate.

### Sealed Container Pilot Project

A tripartite agreement between U.S. Customs, Mexican Customs, and *Cableados* (a Mexican assembly plant that is a GM subsidiary), signed on October 27, 1988, allows trucks leaving Mexico to be sealed with company seals at the plant site. The arrangement was outlined as an effort to eliminate the trafficking of drugs and contraband between the two countries. In return for cooperation, the two governments will look for creative ways to speed up commerce, while not compromising the right to search vehicles.<sup>30</sup> As a solution to this problem, seals are attached under tight security at the plant by personnel authorized by U.S. and Mexican customs. This makes them particularly useful for twin plant operations in the Ciudad Juarez area. Low-risk, high-credibility companies, such as GM and GE, have qualified. The security that must attend such a system requires huge capital outlays for fences, guards, new trucks, and constant screening of employees that exclude the smaller industries, even if their product profile fulfills the most stringent customs specifications. This program should eventually expand to companies that are willing to make those outlays. The U.S. Customs Service has approved this program on a general basis, but Mexican Customs has not.<sup>31</sup>

### Line Release

The U.S. Customs Service is committed to the implementation of line release and is actively encouraging the program in El Paso. The customs operation makes use of six "super booths" for more efficient processing of documentation. These inspection super booths require a \$5.00 users fee per trip or \$100 annual fee.<sup>32</sup> The system has proven to be very successful. The combination of physically moving the inspection stations off the Bridge of the Americas (BOTA) and installing the cab-height booths has significantly reduced the waiting time of crossing into El Paso from Mexico at that location. In an effort to impress shippers with this commitment, separate lanes are allocated for use as line release at BOTA.

### Central Examination Stations

In both El Paso and Brownsville, the federal government has entered into cooperative agreements with private enterprise to handle inspections not otherwise practical at the entry point. Centralized Examination Stations (CES) serve to relieve overflow at the border crossings when conducting exhaustive searches. It is generally conceded that the utility of the CES at El Paso will be eliminated with the opening of the new Zaragoza bridge. In Brownsville, the CES is an absolute necessity, given the small import lot at the border station. The facility is located four miles from the bridge. When a shipment is flagged for a search, the driver is asked to proceed to the CES and is given directions and a phone number to call if he is unable to arrive at the lot within the allowed 30 minutes. If he does not arrive or call, a search is initiated. A merchandise processing fee of 0.17 percent of product value is then added to an inspection charge, which itself may run as high as \$350.<sup>33</sup> Damage to merchandise during inspections, as reported by brokers in El Paso, has been attributed mostly to overzealous National Guard members, who have recently joined the drug interdiction effort. Serving on a rotating six-week basis does not allow them to be adequately trained to properly handle merchandise.<sup>34</sup>

### Expansion of Services

U.S. import facilities are officially open from 8 a.m. to 5 p.m., with overtime scheduled from 5 p.m. to midnight. El Paso has recently introduced 24-hour service, which complements the increased efforts by Mexican Customs officials to preclear trucks. Mexican Customs normally operates from 8 a.m. to 2 p.m., with overtime service available; costs are borne by the shipper at a percentage of the merchandise's value up to \$175.<sup>35</sup> Merchandise can now be precleared in Casas Grandes, Chihuahua, and pass through the border into the U.S., without having to pay

overtime charges in Mexico or wait for Mexican Customs to open.<sup>36</sup> At Laredo, empty trucks comprise a percentage of the inbound traffic; they are cleared into the United States only from 8 a.m. to 7 p.m. and go through intensive inspection 50-60 percent of the time.<sup>37</sup>

On the Mexican side of the border, the aduana is staying open for imports until 11 p.m., as opposed to 3 p.m. in the past, requiring the U.S. to staff longer hours. The Mexican goal is to remain open 24 hours a day. There is simply not enough staff or funding for U.S. Customs to go on line 24 hours a day, although that would simultaneously improve enforcement posture and accelerate the processing of shipments.<sup>38</sup>

One of the most prominent changes in Mexican Customs at Ciudad Juarez is the new four-step clearance procedure, initiated November 1, 1989; in the past, there were thirteen steps.<sup>39</sup> The number of inspections dropped from 300 a day to less than 25 a day, from October to November 1989, significantly reducing delay.<sup>40</sup> A three-hour limit has been placed on the full-inspection process, further ameliorating the previously overextended delays.

Both the United States and Mexico have maintained personnel on each others' side of the border in recent years. They had been stationed there to alleviate traffic problems over paperwork. This was known as the despacho conjunto where large U.S. companies would have on-site Mexican Customs officials for inspection and sealing purposes.<sup>41</sup> The shipments could thereby pass through the border without being held up for inspection. The U.S. removed its staff from Mexico, terminating the program for reasons of physical safety of agents and uniformity of administration. Recently, however, there has been evidence of officials at the Mexican aduana checking ICC documentation before trucks reach U. S. agents. This is an excellent example of increased cooperation between the two countries.<sup>42</sup>

### Proposed Solutions

The U.S. Customs Service is responding to this wide array of problems with various capital improvements designed to alleviate some of the pressures at the ports of entry under consideration in this study.

Brownsville, Texas. Customs at Brownsville experiences many of the same infrastructure problems as Laredo Customs. For instance, the import lot at Brownsville has docks for only 14 trucks.

I. Project Name: Gateway Border Station  
Brownsville, Texas  
Security Improvements

Description: Security improvements will be designed and constructed to expand the border station facility. The security improvements will include installation of bullet-resistant glazing, a closed-circuit TV system, and an emergency duress alarm system.

Status: Proceeding with working drawings.

II. Project Name: Gateway Border Station  
Brownsville, Texas  
Lane Expansion

Description: The expansion of and improvements to the vehicle inspection areas will be designed and constructed for the existing border station facility. The number of primary and secondary inspection lanes will be increased and line release lanes with inspection facilities will be added in the import lot.

Status: Proceeding with working drawings.

- III. Project Name: Gateway Border Station  
Brownsville, Texas  
Renovation and Expansion

Description: Repairs and alterations will be designed and constructed for the existing border station. The administration building will be renovated and expanded, the USDA Plant Inspection Building will be renovated, a new dock will be constructed at the USDA site, and numerous site alterations will be constructed.

Status: Proceeding with working drawings.

- IV. Project Name: B&M Border Station  
Brownsville, Texas  
Replacement Station

Description: A new government-owned border station facility will be constructed to replace the current leased facility. The new design will handle more vehicular traffic than does the present one and will permit future expansion as needed.

Status: Land condemnation proceeding.<sup>43</sup>

El Paso, Texas. As mentioned earlier, in El Paso, two lanes of the Bridge of the Americas (BOTA) have been dedicated to line release, complementing the removal of the inspection stations from the bridge proper and expansion to six lanes in August 1989. New "super booths" provide a cab height station equipped with personal computers and potential line release capabilities. One lane is also dedicated solely to commercial entry.

The new Zaragoza bridge between Ysleta, Texas, and Zaragoza, Chihuahua, is a flat bridge, unlike the BOTA, which requires continual maintenance due to its arched construction. It is to be a 24-hour, 7-day-a-week operation, with a dedicated commercial traffic lane. It will have complete customs facilities, including its own inspection lot. Speculation is that it will eventually siphon off approximately 50 percent of the traffic now using BOTA and that it may attract the majority of the maquiladora traffic that now represents 70 percent of all the transborder transit in the Ciudad Juarez area. The bridge's opening is particularly timely as the new highway from Culiacan, Sinaloa, connecting with the Chihuahua/El Paso highway, will soon be completed. An increase in produce shipments through the Port of El Paso is anticipated as a result.

A most important improvement in the area of infrastructure at El Paso is the on-site location of brokers at BOTA. The brokers may purchase portable buildings to Government Accounting Office specifications, and locate them within sight of the "super booths." There are currently eight brokers and two importers (Zenith is an example of an importer that handles its own brokerage) taking advantage of this development.

- I. Project Name: Bridge of the Americas  
El Paso, Texas  
Major Renovations and Additions

Description: Provide additional primary lane. Renovate main building headhouse and customs office building; increase the commercial traffic capacity by expanding the existing import lot and constructing a new dock. Improve security.

Status: Present design completion date of 01/05/90 will be met.

- II. Project Name: Bridge of the Americas Border Station  
El Paso, Texas  
Pollution Abatement, Vehicle Primary

Description: Provide HVAC improvements in the vehicle primary area, as required for the abatement of pollution from vehicular exhaust.

Status: Construction contract awarded.

- III. Project Name: Paso del Norte Border Station  
El Paso, Texas  
Major Renovations and Revisions

Description: Provide accommodations for future traffic needs, including major renovation work to the existing building and headhouse; construction of a new building for the Border Patrol, along with overall improved security for the entire border station.

Status: Prefinal submittal was received 11/21/89.

- IV. Project Name: New Ysleta Border Station  
El Paso, Texas

Description: Replace the existing border station with a new border station inspection facility to accommodate the anticipated increase in pedestrian, passenger, vehicle, and commercial traffic.

Status: Design contract complete and construction is scheduled for "fast track."<sup>44</sup>

Laredo, Texas. In Laredo, there is one import lot serving both international bridges, one of which no trucks can use. The new Colombia bridge, built 15 miles east of the current facility, will cause brokers to relocate. Laredo as a city will lose some commercial business, but, for customs, there will be no problem with expansion. The existing plans for the Colombia bridge call for 200-250 docks for truck inspection and 30-40 acres of import lot. Currently, the Laredo docks can accommodate only 20 trucks at one time for inspection.

The construction of this bridge also coincides with highway improvements in Mexico. Six Monterrey companies are involved in building the highway and bridge from Monterrey to Laredo. The highway will be constructed in 18 months and will then be maintained by the same companies for 7 months.

- I. Project Name: Convent Street Border Station  
Laredo, Texas  
Repair and Improvement

Description: Facility improvement at this GSA-owned border station will include a complete building renovation, expanded inspection capabilities, and security improvements.

Status: Design 100 percent complete as of 11/30/89.

- II. Project Name: Juarez-Lincoln Bridge Border Station  
Laredo, Texas  
Commercial Expansion and Upgrade
- Description: The facility upgrade at this border station will include security improvements, expansion and improvements to existing import lot and buildings, reconstruction of the existing truck exit, and the construction of a new import facility.
- Status: Design and construction in various stages of completion
- III. Project Name: Railroad Bridge Border Station  
Laredo, Texas  
Replacement Station
- Description: A new inspection facility to meet U.S. Customs Service needs will be designed and constructed. This facility will provide secured space for agency personnel and holding cells for detained aliens.
- Status: The lessor submitted a proposal to construct a new facility as originally requested by GSA by 11/30/89.
- IV. Project Name: Colombia/Laredo Border Station  
Laredo, Texas  
New Station
- Description: This will be a new station to serve the Laredo area.
- Status: Permit has been obtained and Laredo is issuing bonds.<sup>45</sup>

## CONCLUSIONS

Delays in improvements can be attributed to inadequate facilities to efficiently process the growing number of transborder shipments. The importance of updating and expanding infrastructure is confirmed by the extensive efforts outlined by the Border Station Improvement Task Force. Without these improvements, the potential benefits to be derived from expanded trade between the two nations could be seriously compromised.

It is understood that with larger facilities and expanded hours come greater staffing requirements. In the recent past, in an effort to utilize existing resources, advancements have taken place that would provide for more efficient use of a smaller labor force. The "super booths" at El Paso allow one U.S. Customs agent to process and clear shipments simultaneously. If the answer to eliminating delays is to be other than increased funding, more efficient use of the limited resources available must be a paramount concern.

This study indicates that solutions to problems which arise in customs operations often become problems themselves. This point is particularly relevant with respect to ABI. Although the achievements of ABI are impressive, implementation has not been without adverse consequences. Start-up costs and capital outlays for computer technology and software are beyond the reach of many small brokers. The system places clerical burdens on the broker and has led to much discontent. Clearly, automation is not a negative development, but it would appear that the customs services on both sides of the border are experiencing a technology lag with respect to the rapid increases in trade. Many other delays are a direct result of the nonconformity of technological advances with existing cargo profiles, as evidenced by the inability of line release to accommodate multiple product loads.



It is historically accurate to say that developments on both sides of the border have occurred without much attention to the externalities they may produce. In the development and implementation of successful border policy, an ongoing dialogue or forum for discussion among all relevant actors in the import/export process has been lacking.

## **POLICY RECOMMENDATIONS**

To reduce the burden of becoming a part of the ABI system, we recommend that the federal government institute a lend-lease program, in which hardware and software are leased to the customs broker on a rent-to-own basis.

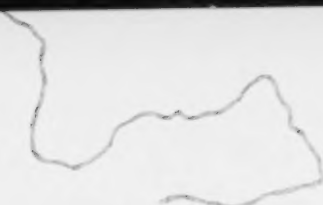
A formalized mechanism for increased dialogue between the two countries' customs services should be implemented to seek cooperative efforts in the area of facilitating trade. This could best be achieved on a site-specific basis with regular planned meetings between local officials.

There is a feeling along the border that the U.S. Customs Service is inordinately concerned with interdiction at the expense of expediting traffic. This, of course, stems from the fundamental difference in priorities between customs brokerage houses, as commercial enterprises, and U.S. Customs, as enforcement agents. Considering that brokers continue to provide a valuable function along the border, it is essential that brokers and customs officials coordinate their activities, rather than work at cross purposes. The pilot sealing program in Ciudad Juarez/El Paso, set forth in the Tripartite Agreement of 1988, is a good example of how industry, brokers, and customs services on either side of the border can work together. We recommend that this concept be expanded in line with the Casas Grandes project. This would alleviate congestion along the border by reducing the actual number of shipments subject to inspection, thereby reducing delays.

A second example of cooperation between brokers and the customs service is the placement of on-site U.S. customs brokers at the Bridge of the Americas in El Paso. This system reestablishes the efficiency associated with previous, less automated procedures, and should be expanded and encouraged along the U.S.-Mexico border.

Line release is an area of U.S. Customs procedures that holds great promise for facilitating transborder traffic. Unfortunately, it has yet to reach its potential. The U.S. Customs Service is currently involved in a pilot project in Buffalo, New York, that is designed to resolve the inadequacies of the current system that discourage multicommodity shipments. These developments should be monitored closely, particularly in light of the fact that line release is ideally suited for the growing number of twin plant operations along the border.

There is no question that improvements on both sides of the border are occurring, which will ensure easier access for commercial traffic to each country. However, a pervasive feeling exists, particularly on the U.S. side, that what happens "over there" is of no significance to either U.S. brokers or customs officials. We disagree. From the perspective of the shipper who trades on either side of the border, and ultimately from the vantage point of the U.S. consumer, an upgrade of the process, predicated on mutual technological progress, holds the key to sustained and consistent development. Until efforts are coordinated with Mexico, the advancements will remain isolated and self-serving.



## Notes

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25. Ibid.
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## Chapter 6. Financing Improvements in Mexican Transportation System Infrastructure

### INTRODUCTION

The current climate of investment in Mexico is the most favorable toward foreign investors that it has been in recent history. The monumental changes stem from the desire to restructure Mexico's foreign debt and restructure the economy. Mexico's entrance in the General Agreement on Tariffs and Trade in 1986 and the presidential initiatives attest to a concerted effort to open up the economy. The traditional guiding principle in foreign trade and investment during the 1970s and early 1980s was protectionism. Numerous and difficult restrictions on foreign investment were enforced in a variety of ways to prevent foreign investment from assuming a major role in the Mexican economy. The new attitude in Mexico today toward foreign trade and investment is a recognition that capital is urgently needed for Mexico's development and that the government is willing to work with the concerns of the foreign investor to modernize Mexico's economy.

The guidelines for direct foreign investment in Mexico were derived from the Mexican Constitution and various other laws and regulations. The 1973 Foreign Investment Law (Law to Promote Mexican Investment and to Regulate Foreign Investment) establishes the general structure of foreign investment in Mexico.<sup>1</sup>

The law had two basic objectives: to establish protectionist rules governing foreign investment and to establish the Foreign Investment Commission to enforce foreign investment regulation. After passage, foreign investors could seldom acquire more than 49 percent ownership in a Mexican business venture. However, the Foreign Investment Commission had the discretion to evaluate special requests on a case-by-case basis to increase the percentage of foreign ownership permitted. In this way, exceptions to the 49 percent foreign ownership rule were sometimes possible. The major exceptions to this rule were maquiladoras, which are usually 100 percent foreign owned and governed by a different set of regulations. Within the border zones, maquiladora production was almost unrestricted, since they were a form of offshore assembly plant for both the United States and Mexico.

According one analyst, "Foreign investment is not welcome in those industrial sectors deemed basic to Mexico's national interest."<sup>2</sup> However, more recent developments in Mexico have redefined what is in the national interest. Regulations have liberalized investment to the limits of statutory authority. The sale of a number of state-owned industries once referred to as "in the national interest" has redefined this concept.

### CURRENT INVESTMENT GUIDELINES

The May 1989 Investment Regulations instituted sweeping changes to the foreign investment rules by executive order without any change in the Foreign Investment Law itself.<sup>3</sup> In essence, by executive order, the president made most direct foreign investment an exception to the Foreign Investment Law.

The outline of new investment rules is laid out in the Official Gazette.<sup>4</sup> This outline describes how foreign investment is categorized, indicates particular economic sectors in which foreign investment is welcome, and explains the government's new position on the role foreign investment will play in renewed development.

According to law, there are several different categories of foreign investment, depending on the source of capital and the type of capital investment. Capital designations are the capital used in the formation of a company not previously in existence, the capital invested in companies that are expanding operations in areas not currently covered by the charter of company activity,



capital invested in companies that are expanding their product line to include items not produced before, and infusions of capital in companies that are changing location, such as when one plant is constructed and another one performing comparable operations is closed. Each classification of capital has similar requirements, with additional conditions based on the purpose of the capital invested.

In the areas in which foreign investment is welcome, the process for investing in Mexico is straightforward. Prior permission to invest in any proportion is not required, provided that the investment meets the following criteria. Investments must be made in fixed assets and used to conduct normal business activities--paid up capital stock must equal 20 percent of all investment by the commencement of the operations. The company must locate outside the designated areas of high industrial density and maintain a balance-of-currency budget for the first three years of operation. Industry must offer full training and benefits to their employees as well as employ adequate technology, along with full compliance with any applicable ecological laws and regulations.<sup>5</sup>

### **Investment in Transportation**

The new presidential decree, however, does not allow for foreign investment in commercial transportation companies. It is explicitly stated in the Official Gazette that the ownership of trucking firms is reserved for Mexican nationals. As mentioned above, however, there does seem to be some discretion available to the Foreign Investment Commission and the Secretary of Communications and Transport regarding certain industries. For the first time, the investment commission appears to be using that discretion, albeit selectively. This policy change may be a dramatic shift from past policies and is a very positive development for U.S.-Mexican trade in general and transportation in particular. During interviews with members of the Foreign Investment Commission and the National Registry of Foreign Investment, it became apparent that under special circumstances, investment rules could be flexible. Factors such as prior contacts in Mexico, the strategic value of the investment to the administration, and the promised employment and technological benefits of the investment are taken into consideration when requests for exceptions are made in foreign investment.<sup>6</sup>

In general, however, investment in transportation infrastructure, as opposed to transportation operations, is explicitly allowed. For example, the construction of electrical plants for the rail system, highways, and road construction are all possible with 100 percent foreign ownership, provided that it meets the five criteria mentioned above, enforced by the Foreign Investment Commission. The arrangement is such that foreign investors own the structures, which are rented by contract to the government.<sup>7</sup> In the case of highways, private ownership is limited to a specified time period, after which the investment reverts to the state.

The Secretaria de Comunicaciones y Transporte (SCT) and the foreign investment branch of the Secretaria de Comercio y Fomento Industrial (SECOFI) are the governmental bodies responsible for promoting foreign and private investment in transportation infrastructure. While SECOFI ensures that foreign investors meet the investment guidelines, the SCT periodically reviews the condition of existing infrastructure in order to draw up plans for investment. The SCT's 1990 National Work Plan outlines areas of deficiency, maintenance, and expansion. A large part of the following will present a synopsis of this work plan, and the opportunities apparently available to foreign and private investors.

## **INFRASTRUCTURE INVESTMENT**

### **Road and Highway Transportation**

Highway construction is a priority for the government as a whole and especially so within the transportation system. In the effort to make the economy more efficient and competitive, more and better highways will be needed to support higher traffic volumes. Despite the

renegotiated debt structure, the capital required to meet this goal will have to come from the private sector. Private investment from domestic and foreign investors will be used to construct toll roads along high-volume routes.

In 1990, infrastructure investment will surpass \$631 million, of which \$561 million will be federal money, with \$70,000 from the private sector. Furthermore, the private sector will spend \$526,000 in work already underway and \$596,000 for projects due to be undertaken in 1990.

Over \$530 million are budgeted for maintenance and reconstruction of all federal roads. Of that amount, 30 percent will be assigned to the federal highway system. It is expected that this money will be sufficient to reconstruct 480 miles of highway in a number of forms. Passing lanes are to be constructed on two-lane highways, and 150 bridges will be rehabilitated.

Project Oasis is a new private investment program designed to increase access to the federal road system by all users. Formerly, only private concessionaires could use the federal road system for commerce. Thus, roadside repair and service facilities were owned by the state and commercial cargo traffic seeking commercial services or maintenance had to be registered concessionaires to receive services. Under deregulation, roadside oases may be privately constructed, owned, and operated for use by the general public without restrictions. Project Oasis will construct 190 roadside stops.<sup>8</sup>

In the effort to facilitate local and regional traffic in outlying areas, 750 miles of rural roads throughout the country will be reconstructed and 84 miles of main roads and connections will be constructed to complete the connections of existing routes. For example, the Chihuahua Hermosillo highway will be made uniform with the reconstruction of the segment between La Junta, Chihuahua, and Yécora, Sonora. This project will complete the route crossing the Sierra Madre Occidental. This route will have an effect on maquiladora goods moving to and from the areas in and around Chihuahua.

To resolve the congestion problem on heavily traveled routes, 102 miles of heavily traveled roads will be modernized. Important segments of several routes will be made into four-lane highways: Guadalajara/Chapala, Pátzcuaro/Morelia/Salamanca, Monterrey/Tampico, Puebla/Tlaxcala/Apizaco, Cancún/Nizuc, Querétaro/San Luis Potosí, Los Mochis/Estación Don, and Zacatecas/Frensilillo.

One project of special note will be the joint federal and state construction of 14 miles between Maycoba and Yécora and 50 miles between Estación Don and Navojoa, which will complete the four lane construction between Estación Don and Nogales.

The National Plan of Solidarity is expected to provide the impetus for construction of highways and feeder roads for the integration of less developed rural communities into the mainstream economy. Construction of 720 miles of feeder highways and 1,140 miles of rural roads will increase access to 2,700 miles of road encompassed by 315 projects.

Projects undertaken in border states with the U.S. will be of particular importance in light of increased emphasis in north-south trade. In Baja California, the four pending projects cover 22 miles of highway offering greater access and safety. In Sonora, six projects covering 85 kilometers will be started. In Chihuahua, four projects will total 18 miles. Coahuila will begin five projects totaling 28 kilometers. Nuevo Leon will begin 20 miles of work for this particular project, aside from the work underway for the private tollway leading to the Colombia bridge project. Tamaulipas will construct 22 miles in three projects around the state.

With the help of the president, a group of private investors, contractors, and transportation specialists were gathered to undertake 12 large infrastructure projects with private investment and bank funds. These projects will produce 617 miles of new highways and high-capacity toll bridges.<sup>9</sup>

## Rail Transportation

Rail transportation is an area in which the private domestic or foreign investor will have considerable options for investment. Mexican National Railways (Ferrocarriles Nacionales de México-- FNM) plans a number of expansion and renewal programs. Modernization of the national system will take the form of expansion, reconstruction by replacement and substitution of rail, bridge construction, double-line construction, and signalization. The areas in which private investment is sought are double-line construction and signalization. The rationale for channeling investment in these areas is clear: for a moderate investment, the increased productivity will be substantial and the return on investment will be attractive. New construction is most likely to take place between the main industrial points, between these industrial centers and the coasts, and between industrial centers and foreign points of entry.

Construction of double lines, signaling, and reconstruction of rail will be centered on the industrial centers of Mexico City, Monterrey, and Guadalajara. For example, investment is being sought for signaling the rail corridor between Mexico City and Monterrey. This line will run through Querétaro and will be a uniform high-capacity line to accommodate double-stack containers. With the help of foreign investment, it is hoped that a complete high-capacity line, capable of hauling double-stack rail cars from Mexico City to Chicago, Illinois, will be completed. In a related short-term project, a high-priority project this year will be installation of signals between San Luis Potosí and Mexico City. This installation will reduce costs and travel times between Mexico City and Monterrey, the two major industrial centers of Mexico.<sup>10</sup>

In the area of industrial center connections to the coast, the port of Altamira will be connected with Veracruz, Mexico City, and Monterrey. Although the project would be costly and would rely heavily on foreign investment, it is economically viable and would help utilize installed port capacity in Altamira and Veracruz. The triangle formed between Monterrey, Mexico City, and Altamira would make all those points more accessible for foreign commerce.

Another proposed project is a land bridge (*punte terrestre*) from the port cities of Coatzacoalcos and Salina Cruz. The construction of an efficient high-capacity rail line could divert goods crossing the isthmus away from the Panama Canal to Mexico. However, this plan has been on the books for years. Implementation is dependent upon sufficient external financing.

The rail segment of the transportation system is expected to grow significantly in the cargo market. In 1990, the modernization plan will continue to renew the existing system to aid its integration into the overall transportation picture. Currently budgeted for \$1 million, the program includes rebuilding and replacement of rail covering 289 miles of rail, rehabilitation of 5 rail yards, and reinforcement of 250 bridges. This year the electrification project from Mexico City to Querétaro will be completed, allowing for the use of 24 electric locomotives. Another important rail project will be the Ajuna/Caltzontzin route, which will allow efficient access to Lázaro Cárdenas, a port facility of increasing importance because of its proximity to Cuernavaca, Mexico City, and Guadalajara.<sup>11</sup>

Primary products, partially constructed industrial materials, and other industrial and extraction products will remain a large segment of the materials transported by FNM. At the same time, FNM will try to emphasize gaining more business in finished industrial products, which will require more specialized and modern equipment. Furthermore, better rail transportation will stimulate multimodal transportation using containers and trailers loaded on platforms.



## Maritime Transportation and Seaports

Private investment in maritime transportation will take the form of warehousing and heavy machinery for transferring freight to motor and rail at ports. As in rail investment, it is expected that capital invested in this area will provide sufficient return to attract investors. The investment program will be a leasing program or sovereign operation. In the case of leasing, investors can agree to lease equipment to the state or private corporations for their use. The other option is for private concerns to build and operate a port facility for their use (exclusive or nonexclusive) and to own the land used for the facility by means of a trust fund or lease agreement with the government.

Maritime transportation currently accounts for 80 percent of all foreign commerce tonnage. According to SCT, "the modernization and strengthening of maritime transportation is a fundamental objective to reach a balanced and integrated national transportation system."<sup>12</sup> Public and private investment will be coordinated to encourage the development of specialized cargo terminals. For example, specialized facilities for cement will be constructed in Guaymas, Manzanillo, Altamira, and Progreso. Equipment for container handling will be installed in Ensenada and Puerto Morelos. Refrigeration services will also be made available in Ensenada. Investment in port equipment will reach \$25 million for the acquisition of four loading cranes and auxiliary land transportation equipment destined for Manzanillo, Lázaro Cardenas, Altamira, and Veracruz. Of those \$25 million, \$8 million will be used for reconstruction of cleaning facilities.

Puertos Mexicanos, the state enterprise that operates the port system, will undergo a financial reorganization in order to achieve self-sufficiency. A concerted effort will be made to ensure operating costs will be covered by users, therefore reducing the burden on the federal government for new capital investment. This increase in profits is expected to cover 33 percent of this year's infrastructure expenditure. In 1990, investment will be centered on modernizing port facilities for greater efficiency, security, and cost savings. This modernization will aid port specialization for the mechanized processing of dry cargo and multimodal containers. Puertos Mexicanos will designate \$85 million for new equipment, construction, and maintenance of infrastructure this year.

In the area of coastal environment conservation, projects include reconstruction of breakwaters in Coatzacoalcos, Veracruz. Loading dock reconstruction will take place in San Carlos, Baja California Sur; Guaymas, Sonora; and Acapulco, Guerrero. Machinery maintenance will be a priority in Salinas Cruz, Oaxaca, and Tampico, Tamaulipas. Cleaning facilities will be retrofitted in Ensenada and El Sauzal, Baja California, and El Mezquital, Tamaulipas.

With the infrastructure expansion in 1990, projections of tonnage shipped through Mexican ports approximate 27 million tons of cargo, not including petroleum products, salt, or plaster. The estimates indicate a 6 percent increase in volume over last year. Container traffic projections indicate a 20 percent increase. Over 161 million containers may be transported this year. This figure, although demonstrating a marked increase, is consistent with the regulatory changes permitting new door-to-door multimodal transportation. For example, in food grains, the goal is to reduce by 50 percent the time delays of loading and unloading containers from 25 containers per ship-hour to 32 tons per ship-hour, increasing productivity by about 42 percent.<sup>13</sup>

## Air Transportation

The federal government is expected to dedicate approximately \$42 million for the modernization and reconstruction of passenger and air cargo terminals. The three main projects will be continued expansion in Mexico City, Toluca, and Puebla. A new airport will be opened in Bajío, and \$5 million will be spent among the Cancún, Tijuana, and Mazatlán airports. Private investment will be used to expand the airport in Culiacán. In addition, there is a possibility of transforming the Puebla airport into a cargo-only airport.<sup>14</sup>

## CONCLUSIONS

The transportation system as a whole is undergoing rapid change in Mexico as part of an overall trend of economic revitalization and liberalization. Yet, the overall success of these efforts depends partly on how effective the changes in transportation turn out to be. Mexico is in a transition stage in which the government is manipulating the determining factors of the economy so as to break with the past. By encouraging foreign investment and opening its borders to less restrictive trade, the path of the Mexican economy is turning toward more active involvement with the United States and the rest of the world.

The magnitude of the changes in Mexico must not be overlooked, and the extent of their effects is tangible. For example, improvements in the railroad track condition in nonfrontier states may not seem to affect the U.S. directly. Yet, because vital foodstuffs are transported from the U.S. to the less developed parts of southern Mexico via this system, it will have an effect on the commercial food market between the two countries. Another example would be the Mexican port system. Improvements in the port facility of Altamira and its connection to Monterrey would have a quantifiable effect on traffic in the Port of Houston. An improved connection from Altamira to Mexico City would allow a greater percentage of goods moving to the capital to arrive faster and would reduce the burden on overland transportation systems.

Infrastructure improvement must continue for Mexico to avoid serious problems in competitiveness under the General Agreement on Trade and Tariffs. Failure to improve efficiency would hurt Mexican suppliers that are forced to compete on equal footing with highly developed competitors. On a more microeconomic level, affordable transportation costs would allow more domestic commerce to take place at lower costs, allowing for higher profit margins and more capital investment. For a reasonable price and on acceptable terms, Mexico can use foreign capital sources to tap the potential in its own economy.



## Notes

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9. Secretaria de Comunicaciones y Transportes, "Programa de Trabajo 1990," Mexico, D.F., n.d., pp. 3-5.
10. Interview by Gabriel Garcia and Matthew C. Witosky with Ing. Javier Tello S., Gerente de Planeacion y Evaluacion de Proyectos, Ferrocarriles Nacionales de Mexico, Mexico City, March 9, 1990.
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13. Ibid., pp. 25-29.
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## Appendix A. Maquiladora Plant Managers Survey

### INTRODUCTION

In the past two years, the United States and Mexican governments have made significant progress in facilitating increased Mexican-American trade. Despite the removal of trade barriers, a significant amount of literature suggests that serious infrastructure and regulatory obstacles continue to impede progress in Mexican-American trade. Issues identified in the literature have ranged from complaints about the condition of Mexican roads to concerns about inefficient U.S. Customs Service practices to demands for direct access to the Mexican interior.

A survey of maquiladora plant managers was conducted to determine how the actual users of the Mexican-American transborder transportation system perceive obstacles to improved bilateral trade. As direct users of the transportation system, the maquiladora managers can identify the key issues they face in transborder commerce, gauge the perceived effect on commerce created by these issues, and suggest possible solutions to problems.

### METHODOLOGY

The survey began with a review of existing literature concerning issues affecting Mexican-American trade and with several interviews with government officials and representatives of interest groups who conveyed their views on obstacles to improved transnational commerce. Participants in the project decided that input from the actual users of the transborder transportation system would provide a great deal of insight into the problems and issues faced in conducting bilateral trade.

#### Target Groups

Two target groups were proposed to reach the actual users of the transborder transportation system: (1) U.S. and Mexican suppliers of bilateral trade products and (2) maquiladora plant managers. The difficulty in obtaining a comprehensive or even a representative list of suppliers effectively eliminated the first target group from consideration. The second target group, maquiladora managers, was chosen for its accessibility, and its diffusion along the entire United States-Mexican border, and because of the large variation of products within the maquiladora industry. A sample of 926 maquiladoras was selected from a 1989 database containing 1,200 maquiladora plants located along the United States-Mexican border. The database was obtained from the Bureau of Business Research at The University of Texas at Austin. The 274 plants not included in the survey were eliminated due to incorrect addresses.

Based on an expected response rate of 10 percent, the sample size of the mail questionnaire was determined to be 95 to 100 questionnaires. To increase the response rate, an endorsement drive was conducted to obtain the support of border economic development agencies for the survey. The McAllen Economic Development Council, Laredo National Bank, and the Twin Plant News endorsed the survey. The actual number of returned questionnaires was 103, or 11 percent of the total number of plant managers who were mailed a survey form.

#### Questionnaire Content

The questionnaire asked plant managers to identify how their goods were shipped across the border, what types of products they transported, and through which border region these goods were shipped. In addition, they were asked to rank, on a scale from one to five, the effects of 25 transportation issues on their transborder operations, with one being a strong negative effect and five being a strong positive effect (see Appendix B for survey instrument).

Two obvious problems arose from the methodology described above:

1. The target group consisted predominantly of Mexican establishments, eliminating the possibility of contrasting U.S. and Mexican perceptions of transborder issues.
2. The maquiladora industry represents a very small fraction of the overall commerce between Mexico and the United States.

Future efforts along these lines could minimize these problems through identifying suppliers who are representative of transborder commerce originating in both countries.

## SUMMARY OF RESPONSES

### Nature of Maquiladora Transborder Commerce

The survey found concentrations of maquiladora transborder commerce in the following areas:

1. Ciudad Juarez/El Paso: 13.6 percent of the 103 respondents directed at least 50 percent of their overall transborder commerce through Ciudad Juarez-El Paso.
2. Tijuana/San Diego: Over 13 percent sent 76-80 percent of their total commerce through Tijuana-San Diego.
3. Matamoros/Brownsville: One out of every ten respondents sent at least one-half of the total transborder commerce through the Matamoros-Brownsville region.
4. Nuevo Laredo/Laredo: Only 8 percent of the respondents sent one-half or more of their total commerce through Nuevo Laredo/Laredo.

It should be noted that the above concentrations of maquiladora traffic are in contrast to figures contained in reports by the U.S.-Mexico Carrier Working Group, which identify Nuevo Laredo/Laredo, Ciudad Juarez/El Paso, and Tijuana/San Diego as the primary hubs of maquiladora transborder activity.

The review of literature undertaken before conducting the survey provided little coverage of transborder commerce performed by means other than trucking. Data compiled by the Institute for Manufacturing and Materials Science in the Maquiladora Survey-Mexican Content Report identified trucks as the primary mode of transportation. In support of this finding, survey respondents likewise identified trucking as the predominant mode of transportation used to move maquiladora commerce across the border (see Figure 1 below). Nine out of every ten respondents reported that at least 50 percent of their plant's transborder commerce was shipped by truck. Over 80 percent reported that 76-80 percent of their goods were shipped by truck. Competing modes of transportation were rarely used for transborder shipments. Only seven of the 103 respondents used rail to move transborder commerce and the use of air transport was even more infrequent. Air or rail transport was reported to be used by less than 7 percent of the total respondents.

**Figure 1.**  
**Mode of Transport Used to Ship 76-100 Percent of Goods**

|                 |              |
|-----------------|--------------|
| Air             | less than 1% |
| Maritime Vessel | 1.9%         |
| Train           | less than 1% |
| Truck           | 86.4%        |

The goods most often identified with the maquiladora industry are those relating to the electronics, automobile, textiles and plastics industries. Contrary to this belief and to the results of a survey conducted by the Institute for Manufacturing and Materials Science, less than two-thirds of the respondents claimed that 76-100 percent of their overall transborder commerce involved goods related to these industries. Goods related to the electronics industry, however, constituted the greatest percentage of a single type of product. One out of every four respondents claimed that 76-80 percent of their overall transborder commerce was in the electronics industry.

#### **Infrastructure Issues**

In general, respondents perceived infrastructure issues as constraints on transborder commerce. A major complaint of maquiladora plant managers is the state of the Mexican road system. Over 70 percent of the respondents believe the poor condition and maintenance of Mexican roads negatively affect their transborder commerce. Fifty percent of the respondents reported that Mexican road congestion has a negative effect on their transborder commercial activity.

The U.S. highway system generally received higher marks. Almost 60 percent of the respondents reported that U.S. road conditions and maintenance have a positive effect on their commerce. Twenty-five percent of the respondents reported U.S. highway congestion as a negative effect on their activities.

One out of every two survey respondents perceived the small number of transborder bridges as a problem and one out of every four perceived the issue as a serious constraint on their transborder commerce. Several business people in the border region, as well as government agencies, have complained about the lack of and poor condition of transborder bridges. The poor condition and maintenance of the bridges, however, proved not to be as important to the maquiladora plant managers as the number of transborder bridges.

In general, infrastructure issues not related to trucking were perceived as having no effect on the transborder operations of those surveyed. A great majority of the respondents perceived the issues of the condition and capacity of the Mexican National Railways, the lack of double-stack train service in Mexico, the lack of intermodal services at border points of entry, and Mexican air capacity as having a neutral effect on their operations. This apathy toward nontrucking infrastructure issues most likely stems from the overwhelmingly predominant usage of trucking as the primary mode of transportation by the survey respondents.

#### **Customs Procedures and Regulations**

The data collected from the survey generally supported the information obtained prior to the survey concerning customs operations. Representatives of the Texas Department of



Commerce, the Border Trade Alliance, and specific transportation firms had identified the key customs issues affecting transborder commerce as:

1. nonuniform enforcement of Mexican Customs regulations along the border,
2. delays caused by Mexican documentation processing,
3. Mexico's lack of line-release operations,
4. the inability to deal directly with Mexican Customs without the use of a customs broker, and
5. communication problems between company representatives, brokers, and Mexican Customs agents.

Over 75 percent of the respondents identified nonuniform enforcement of Mexican Customs regulations as having a negative effect on their transborder commerce and nearly one-third perceived a strong negative effect from this issue.

More than one-third of the respondents perceived delays caused by Mexican documentation processing as having a strong negative effect on transborder commerce. Average ranking for this category, 1.97 on the one (strong negative effect) to five (strong positive effect) scale, exhibited the strongest perceived negative effect on maquiladora operations of all the 25 issues on the questionnaire list.

Nearly two-thirds of the respondents indicated that the lack of line release in Mexican Customs operations has a negative effect on their transborder activities. Line release is a form of preclearance for shipments moving across the border. The average ranking of this issue's effect was 2.10 on the 1-to-5 scale.

One-half of the respondents claimed the inability to deal directly with Mexican Customs agents without the use of a customs broker has a negative effect on their operations.

Communication problems at the border, contrary to expectations going into the survey, were perceived by the respondents as having relatively little negative effect on their operations. Less than 50 percent of the plant managers perceived communication problems between company representatives, brokers, and Mexican Customs agents as having a negative effect.

United States Customs fared slightly better than their Mexican counterparts. Nearly two-thirds of the respondents viewed delays caused by U.S. documentation processing as having a negative effect on their operations. Fifteen percent of the respondents reported a positive effect from U.S. documentation delays. Only one of four respondents perceived the issue of access to U.S. Customs as a problem in their transborder operations.

#### **Other Issues Affecting Transborder Trade**

This category includes issues not directly involved with infrastructure or regulatory concerns but commonly regarded as key issues in Mexican-American trade.

Delays caused by narcotics checks were perceived by fifty-seven percent of the respondents as having a negative effect. Delays caused by narcotic checks, therefore, have a considerable negative effect on their transborder operations.

Over 50 percent of plant managers identified the inability of Mexican trucks to meet U.S. safety standards as having a negative effect on their operations. This response echoes recent

complaints by trucking firms to the U.S. Department of Transportation about Mexican carrier inability to meet U.S. safety standards.

Only one-third of the respondents perceived the lack of liability insurance on equipment leased to Mexican carriers as having a negative effect on their commerce. U.S. trucking firms have been more outspoken about this issue, claiming they are forced to assume the cost for damage to their equipment by Mexican carriers.

Forty-three percent of the respondents reported Mexican shuttle carrier rates as having a negative effect on their operations. The average ranking of the effect of shuttle carrier rates was 2.41 on the one (strong negative) to 5 (strong positive) scale. This response was more positive than was expected based on prior information from the Border Trade Alliance concerning the costs of Mexican shuttle carriers.

#### **Summation of the Issues Affecting Transborder Trade**

The key issues negatively affecting United States-Mexican trade, according to the average perception of the 103 survey respondents, were identified in rank order as:

1. Mexican documentation processing,
2. lack of line release in Mexico,
3. nonuniform enforcement of Mexican customs regulations,
4. delays due to narcotics checks, and
5. delays caused by U.S. documentation processing.

#### **Comments of the Responding Plant Managers**

Attached as Appendix C are the narrative responses from the survey concerning issues the maquiladora plant managers identified as affecting U.S.-Mexico commerce and their suggestions for policy initiatives to solve some of these problems. The comments are arranged by geographic region.

**Table 1. Issues Perceived by Survey Respondents  
as Having a Negative Effect on Their  
Transborder Operations**

| <u>Issue</u>                                                         | <u>Strong Negative [1]<br/>(%)</u> | <u>Negative [1 or 2]<br/>(%)</u> |
|----------------------------------------------------------------------|------------------------------------|----------------------------------|
| Number of Transborder Bridges                                        | 24.7                               | 49.5                             |
| Mexican Highway Congestion                                           | 29.7                               | 56.4                             |
| Lack of Uniformity in Mexican Customs<br>Regulations and Enforcement | 28.7                               | 77.2                             |
| U.S. Customs Documentation Processing                                | 23.2                               | 63.6                             |
| Mexican Documentation Processing                                     | 34.7                               | 74.7                             |
| Lack of Line Item Release                                            | 30.0                               | 64.3                             |
| Delays Caused by Narcotics Checks                                    | 25.3                               | 57.6                             |
| Condition and Maintenance of<br>Mexican Roads                        | 12.9                               | 72.3                             |
| Forced Use of Mexican Customs<br>Brokers                             | 19.4                               | 49.0                             |
| Inability of Mexican Carriers to<br>Meet U.S. Safety Standards       | 13.3                               | 52.0                             |

#### **IDENTIFYING RELATIONSHIPS BETWEEN BORDER ISSUES AND SHIPPING DECISIONS**

##### **Shuttle Carrier Rates and the Percentage of Goods Shipped by Truck**

Access to the Mexican interior has become an increasingly important concern of U.S. trucks and suppliers during the past few years. At the heart of this issue is the debate over the role of Mexican shuttle carriers. U.S. truckers, in their grievances before the U.S.-Mexico Motor Carrier Working Group as well as the Border Trade Alliance, contend that the costs of forced reliance on shuttle carriers to transport their goods into and out of Mexico retards opportunities for increased commercial activity.

Analysis of the survey data shows a moderately strong positive relationship between plant managers' perceptions of the effect of shuttle carrier rates on their operations and the percentage of goods that is actually shipped across the border by truck. This finding does not indicate a causal relationship between shuttle carrier rates and truck traffic; it merely indicates that managers who perceive shuttle carrier rates less negatively tend to ship more goods across the border. It would be dangerous to assume, however, that managers ranking shuttle rates higher than other managers would ship more goods by truck. For one thing, no one felt shuttle carrier rates had a strong positive effect on their operations. The second cause for skepticism is that over 55 percent of the respondents perceived shuttle rates as having no effect. At most, the survey results indicate that shuttle carrier rates were not a primary concern of managers when deciding the amount of goods to ship by truck across the border.

### **Delays Caused by U.S. Documentation Processing and the Percentage of Goods Shipped through Specific Border Points of Entry**

Because U.S. documentation processing was identified as one of the most important issues affecting maquiladora transborder operations, studying the relationship between the managers' perception of this issue and the percentage of overall commerce a maquiladora ships through a border region may indicate whether managers' decisions to ship through a specific port are influenced by their perception of U.S. Customs inefficiency. Additionally, the correlation of these two variables in the regions of Ciudad Juarez/El Paso, Matamoros/Brownsville, and Nuevo Laredo/Laredo could show differences in the perception of delays caused by U.S. documentation delays, depending upon the area through which a maquiladora ships the majority of its goods.

In general, no significant correlations between the effect of U.S. documentation delays and the percent of goods shipped through a specific region could be found in the survey data. Only in Ciudad Juarez/El Paso was there a positive relationship between the managers who shipped a majority of their goods through that region and their perceptions of delays caused by U.S. documentation processing (relatively more positive perception). No significant correlation exists to support the conclusion that documentation delays influence the amount of traffic sent into transborder commerce or through specific ports by maquiladoras. The following statistics were generated from the survey data:

1. Of the 13.13 percent of plant managers shipping 76-100 percent of their goods through Ciudad Juarez/El Paso, over half perceived delays caused by U.S. documentation processing as a negative effect on their operations.
2. Of all respondents, 63.4 percent perceived a negative effect due to U.S. documentation processing, and 23.7 percent of these managers shipped 76-100 percent of their goods through the Ciudad Juarez/El Paso border region.
3. Of the maquiladoras shipping 76-100 percent of their goods through Nuevo Laredo/Laredo, over 50 percent perceive U.S. documentation delays as having a negative effect on their operations.
4. Over 80 percent of the respondents shipped 0-25 percent of their goods through the Matamoros/Brownsville region.

The above observations may indicate that managers' perceptions of U.S. Customs documentation delays have no bearing on decisions concerning which border region through which to ship their goods.

### **Effect of Transborder Bridges on Border Shipments**

The data collected from the survey questionnaire were analyzed to determine whether a correlation existed between the managers' perceived effect of the number of transborder bridges on their operations and the percentage of goods a maquiladora ships through a border region. Very little correlation was shown to exist. The following observations generated from the data help put the observed relationships into clearer focus.

1. In Ciudad Juarez/El Paso and Matamoros/Brownsville, nearly one of every two plant managers that ship 76-100 percent of their goods through that region perceive the number of transborder bridges as having a strong negative effect on their operations.
2. In Nuevo Laredo/Laredo, less than one of every four plant managers shipping 76-100 percent of their overall commerce through that region perceive the number of transborder bridges as a strong negative factor in their operations.



From the above observations, it can be assumed that plant managers shipping most of their goods through Nuevo Laredo/Laredo view the number of transborder bridges as less of a problem than their counterparts shipping mainly through Ciudad Juarez/El Paso and Matamoros/Brownsville.

### THE EFFECT BORDER TRANSPORTATION ISSUES HAVE ON DECISIONMAKING

Public policy initiatives to address the claims of managers may not be justified, unless a significant causal relationship between manager's claims and the actual decisions made by the managers can be shown.

This section analyzes three major centers of border activity: Nuevo Laredo/Laredo, Matamoros/Brownsville, and Ciudad Juarez/El Paso. Models of these regions were developed in which issues that respondents had identified as having either a positive or negative effect on their operations were examined to determine to what extent these issues affected the plant's decision to ship commerce through a particular border region. These issues are then tested for their effect on a plant manager's decision to ship by truck.

#### Border Issues and Point of Entry Decisions

Nuevo Laredo/Laredo. Prior to conducting the survey, variables that were expected to effect the amount of goods shipped through Nuevo Laredo/Laredo, based on interviews with customs officials and data assembled on fact-finding trips to Nuevo Laredo/Laredo, were:

1. the percentage of goods a maquiladora shipped by truck since Nuevo Laredo/Laredo is reported to receive the highest concentration of transborder truck shipments along the border [b1];
2. plant managers' perceptions of U.S. highway congestion on transborder commerce because congestion is reported to be a major issue at the U.S. Customs station in Laredo (recent reports found that congestion problems no longer afflict the U.S. side of the border) [b2];
3. plant managers' perceptions of delays caused by U.S. Customs documentation processing because this previously was reported as a problem (changes in automation may have eliminated these inefficiencies) [b3];
4. plant managers' perceptions of delays caused by Mexican Customs documentation processing because of similar reports of this as a problem [b4]; and
5. plant managers' perceptions of Mexican highway congestion from reports of long back-ups on the Mexican side of the border [b5].

The following formula was developed to analyze the joint and individual effects of these variables on the percent of goods going through Nuevo Laredo/Laredo:

$$Y = b_1 + b_2x_1 + b_3x_2 + b_4x_3 + b_5x_4 + b_6x_5$$

Based on our prior expectations, the high percentage of goods shipped through Nuevo Laredo by truck would translate into a positive relationship between trucking and the percentage of goods shipped through this region. This would be true because maquiladora operators perceive the facilities in Nuevo Laredo/Laredo as better suited for trucks than other border regions. Both Mexican and U.S. congestion and delays attributed to documentation processing were expected to negatively affect a plant managers' decision to ship through the Nuevo Laredo/Laredo region. It was assumed that the recent automation and processing changes had not been in place long enough prior to the survey to change plant managers' perceptions of these issues.



The formula used to determine relationships between the variables listed above and a manager's decision to ship through the Nuevo Laredo/Laredo region did not generate any conclusive results. No statistically significant relationship was shown to exist between the percentage of goods a maquiladora ships through this region and (taken all together) the percentage of goods shipped by truck, perceptions of the effect of U.S. highway congestion, delays caused by U.S. Customs, delays caused by Mexican Customs, and Mexican highway congestion. An examination of the individual effect of each of these variables on a plant manager's decision to ship through Nuevo Laredo/Laredo likewise showed no statistically significant relationships.

Two conclusions can be drawn from the model. First, the model does not reveal the determining factor upon which management decides through which border region to ship goods. Secondly, and perhaps most important, other key determinants of which border region to ship through are missing. The geographic location of the plant and the location of primary suppliers and distributors has a large influence on decisions because east-west travel along the Mexican side of the border is costly and difficult. The funnel effect of border crossing installations is thus highly effective in concentrating commerce. Thus, despite complaints about the inadequacy of the trucking system, there seem to be obstacles to using other modes of transportation to increase efficiency.

Matamoros/Brownsville. In the Matamoros/Brownsville region, the percentage of goods a maquiladora ships through the region were hypothesized to be affected by:

1. plant managers' perceptions of the effect of the lack of uniformity of Mexican Customs because the truckers in this area are concerned that they are not receiving the same treatment as truckers going through Nuevo Laredo/Laredo [x1];
2. plant managers' perceptions of the effect of the number of transborder bridges because the U.S.-Mexico Motor Carrier Working Group identified the lack of transborder bridges in this region as a problem [x2];
3. plant managers' perceptions of the effect of the condition and maintenance of Mexican roads because there have been reports of poor quality Mexican roads in this area [x3]; and
4. plant managers' perceptions of the effect of the condition and maintenance of U.S. roads and maintenance [x4];

The following formula was used to examine the individual and joint effects of the above variables on the percentage of goods shipped through the Matamoros-Brownsville region:

$$Y = b1 + b2x1 + b3x2 + b4x3 + b5x4$$

The effect of all of the above variables, taken jointly, on the percentage of goods shipped through Matamoros/Brownsville came out as statistically insignificant. The individual effect of each variable on the percent of goods shipped through the region also came out as statistically insignificant in each case.

The conclusions that can be drawn from the Matamoros/Brownsville model are the same as those drawn from the Nuevo Laredo/Laredo model previously discussed. Plant managers' perceptions of the issues identified in the model are not significant factors in their decisions to ship goods through this region. Other factors, not identified in the model, must be influential.

Ciudad Juarez/El Paso. Key issues expected to influence the percentage of goods a maquiladora plant ships through the Ciudad Juarez/El Paso region are

1. plant managers' perceptions of the effect the number of transborder bridges has on their commerce because the number of transborder bridges in this region was debated in several studies examined by the research group [x1];
2. plant managers' perceptions of the effect the condition and maintenance of the transborder bridges has on their operations because the studies examined identified the condition of the bridges in this region as a source of discontent with U.S. carriers [x2];
3. plant managers' perceptions of the effect that the lack of line release has on transborder operations because this issue has received a great deal of attention [x3];
4. plant managers' perceptions of the effect the condition and maintenance of Mexican roads has on their transborder operations [x4]; and
5. plant managers' perceptions of the effect the condition and maintenance of U.S. roads has on their transborder operations [x5].

A formula similar to that used in the Nuevo Laredo/Laredo and the Matamoros/Brownsville models was used to examine the joint and individual effects of the above variables on the percent of goods shipped through the Ciudad Juarez/El Paso region. The total impact of all the variables was shown to have an effect on the percentage of goods shipped through the Ciudad Juarez/El Paso region when the probability of error for the model was increased to 20 percent. The perception of the effect of the condition and maintenance of Mexican roads was also shown to have a statistically significant effect, with a 10 percent probability of error. To increase transborder commerce going through this area, the local Mexican government may want to improve maquiladora plant managers' perceptions of Mexican road conditions. All other independent variables proved statistically insignificant.

**Conclusion.** The three regression models containing border issues that were addressed in the survey failed to adequately explain what influences a maquiladora plant manager to ship, or not to ship, through any of the three regions examined.

#### **Key Border Issues and Decisions Concerning Mode of Transportation**

An overwhelming majority of maquiladora plant managers claimed that 76-100 percent of their transborder commerce was shipped by truck. To explain the dominance of trucking as the primary mode of transportation for transborder operations, the linkage between plant managers' perceptions of the effects of specific border issues and the percentage of goods shipped by truck was examined. It was hoped that this linkage could offer insight into the heavy reliance on trucking as opposed to competing forms of transportation.

The following border issues were identified as possible factors in a plant managers' decision to rely on trucking as the primary mode of transportation:

1. plant managers' perceptions of the effect the lack of double-stack container train service into Mexico has on transborder commerce [x1];
2. plant managers' perceptions of the effect the lack of intermodal, or combined modes of transportation, services at border points of entry has on transborder commerce [x2];
3. plant managers' perceptions of the effect that the lack of adequate liability insurance on U.S. equipment leased to Mexican carriers has on transborder commerce [x3];

4. plant managers' perceptions of the effect shuttle carrier rates have on transborder commerce [x4];
5. plant managers' perceptions of the effect the condition and maintenance of the Mexican roads have on transborder commerce [x5]; and
6. plant managers' perceptions of the effect the condition and maintenance of U.S. roads have on transborder commerce [x6].

To assess the joint and individual effects of the border issues listed above on the choice of trucking as a primary mode of transportation, the following formula was devised:

$$Y = b_1 + b_2x_1 + b_3x_2 + b_4x_3 + b_5x_4 + b_6x_5 + b_7x_6$$

The lack of double-stack train service, the lack of intermodal services, and the condition and maintenance of U.S. roads were expected to encourage the use of trucks. The lack of liability insurance, shuttle carrier rates, and the condition and maintenance of Mexican roads were expected to have a negative effect on the percentage of goods shipped by truck.

All of the issues, taken jointly, were found to have an effect on the percentage of goods shipped by truck. The individual variables that were found to have a statistically significant effect on the percentage of goods shipped by truck were

1. the perceived effect the lack of double-stack train service in Mexico has on transborder operations (negative relationship);
2. the perceived effect the lack of intermodal transportation services at border points of entry (positive relationship); and
3. the perceived effect the condition and maintenance of Mexican roads has on transborder operations (negative relationship).

The surprising negative relationship found to exist between the lack of double-stack train service and the percentage of goods shipped by truck implies that, if the manager's perceptions of the problems caused by lack of this service improve, then their use of trucks will increase. One rationale to explain this surprising relationship is that plant managers who have geared their operations toward trucking might perceive the lack of double-stack train service as a benefit to their operations, keeping potential rail-oriented competitors out of the market.

Alternative explanations are related to the nature of maquiladora shipments. First, shipping by rail in double-stack trains or containers is particularly advantageous when line-release customs procedures are used. A high volume of goods can be shipped without delay at the border because customs procedures are carried out at the loading and unloading points. However, because the line-release program is only available for shipments containing six or fewer commodities, most maquiladora shipments would be ineligible. Thus, an improvement in double-stack service is irrelevant to the majority of maquiladora shipments.

Another possible explanation is that an improvement in double-stack service for trains would require an increased reliance on short-haul trucking from the nearest train facilities to the maquiladora production site. The development of rail lines to accommodate maquiladora productions has been slow, so there is a disjunction between the location of rail facilities and maquiladora location. Although this may not change the actual number of truck shipments into and out of maquiladora plants, it brings the short-haul carriage problem to the maquiladora manager, rather than eliminating it altogether by using their own fleet.

Multimodal operations had a strong negative effect on the percentage of goods shipped by truck, supporting the prior expectations that maquiladora managers would be eager, given low-cost considerations, to adopt combined transportation services, if such services were available at the border. Based on this observed relationship from the model, the introduction of multimodal services at the border may be an appropriate method of relieving highway congestion or infrastructure stress caused by the high concentration of trucks going across the border.

A surprising effect generated by the model involved a perceived inverse relationship between managers' perceptions of Mexican road conditions and the amount of goods shipped by truck. According to the results generated, an increase in the perceived effect of Mexican road conditions and maintenance on transborder commerce would correspond with a decrease in the percentage of goods shipped by truck. A possible explanation for this outcome could be that the other variables in the model "corrupt" the influence of Mexican roads on trucking.

The other variables in the model proved statistically insignificant in relation to their effects on the percentage of goods shipped by trucking. Of particular interest is the insignificance of shuttle carrier rates and the liability issue. The absence of statistical relationships between these issues and the amount of goods shipped by truck casts doubt on the grievances raised by the trucking lobby concerning these issues as "unfair" trading practices. The costs of shuttle carrier rates and the lack of liability insurance by Mexican carriers do not appear to be as strong as U.S. carriers have indicated and appear not to affect the percentage of goods a maquiladora ships by truck.

Mexican and U.S. public policy decisionmakers should direct changes in the infrastructure and regulatory framework to meeting the demand caused by trucking. Changes should not be directed at trying to spread the demand among competing modes of transportation until the demand for alternatives to trucking can be shown to outweigh the demand for trucking as the primary mode of transportation. The relationship between liability insurance and shuttle carrier rates and the percentage of goods shipped by truck does not justify any major initiatives in these areas either.

## CONCLUSIONS

The following observations concerning primary users' perceptions of the transportation issues affecting transborder commerce between the U.S. and Mexico stood out most clearly in the responses from maquiladora plant managers.

1. The issues perceived to most negatively affect transborder operations were delays caused by Mexican Customs documentation processing, the lack of line release in Mexico, nonuniform enforcement of Mexican Customs regulations, delays caused by narcotics checks, and delays caused by U.S. Customs documentation processing.
2. There is little correlation between the effects of shuttle carrier rates on transborder commerce and the percentage of goods a plant ships across the border by truck.
3. Transportation issues, taken jointly or individually, do not have a significant effect on a plant manager's decision to ship goods through a specific point of entry.
4. The key policy initiatives the maquiladora plant managers would like to see adopted are increased access to the Mexican interior and streamlining the Mexican and United States customs documentation processing systems.

Based on the results of the survey, the Mexican and American governments should direct their attention to the following issues in order to improve user perceptions of the Mexican-American transborder transportation system:



1. Mexican highway infrastructure,
2. U.S. Customs documentation processing, and
3. Mexican Customs uniformity and documentation processing.

Mexican Highway Infrastructure. The condition of the Mexican highway infrastructure is a sensitive issue for maquiladora plant managers. The plant managers are eager for improvements in this area. Foreign investment in Mexican highway infrastructure should be encouraged in addition to Mexican investment.

U.S. and Mexico Documentation Processing. Problems of efficiency in U.S. and Mexican customs are rapidly being resolved with the introduction of newer, more uniform computerized documentation procedures. The high degree of sensitivity shown by survey respondents concerning customs issues indicates that the users of the transborder system have yet to realize the full impact of these changes. It is to be hoped that these issues will be perceived more positively in the near future. The Mexican and American governments should perhaps make a greater effort at publicizing the changes already in place as well as changes to be implemented over the coming year.

Line release should be adopted at all ports of entry on both sides of the border to reduce delays caused by customs documentation processing at the border. According to the survey results, the lack of line release at many ports of entry is a significant concern among many maquiladora plant managers. Besides satisfying user demand, the introduction of line release could also dramatically reduce border delays.

Uniformity of Mexican Customs. Uniformity in Mexican Customs enforcement is a major concern of maquiladora plant managers not located in the Nuevo Laredo/Laredo or Ciudad Juarez/El Paso area. The Mexican government should consider standardization of customs procedures along the border. Although they may encounter strong resistance from those with a vested interest in maintaining separate customs procedures, such as local customs brokers and agents, standardization could ultimately attract additional business to the Mexican border and increase trade because of perceived reliability by potential investors.

Secondary Issues. Although reciprocal access to the Mexican interior and liability insurance by Mexican carriers are well publicized in literature stemming from trucking-oriented interest groups, these issues are of secondary importance. While grievances may be frequent and harsh, the survey respondents indicate that these issues do not deter them from transborder activity. The political significance of these issues could necessitate addressing them, but the economic impact of changes in these areas is not likely to be great.





## Appendix B. The Survey

Please answer each of the following questions as accurately as possible. If you wish to elaborate on any responses, feel free to attach additional pages. Once you have finished, return the questionnaire in the enclosed addressed, stamped envelope.

1. In what city/town are you located? \_\_\_\_\_

2. What type (s) of products are part of your company's trans-border commerce? Indicate the percent each of the following product types constitute in your overall trans-border commerce by placing an "x" under the appropriate column.

### Percent of Goods in Trans-border Commerce...

| <u>Product Type</u>              | <u>0%</u> | <u>1-25%</u> | <u>26-50%</u> | <u>51-75%</u> | <u>76-100%</u> |
|----------------------------------|-----------|--------------|---------------|---------------|----------------|
| 1. Automobile Components         | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 2. Electronics/ Electrical Parts | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 3. Textiles                      | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 4. Plastics/Chemical Products    | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 5. Other: _____                  | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |

3. Through which of the following border regions do you import supplies or export finished products? Indicate the percent of goods shipped through the following border regions by placing a "X" under the appropriate column.

### Percent of Goods Shipped through...

| <u>Border Region</u>         | <u>0%</u> | <u>1-25%</u> | <u>26-50%</u> | <u>51-75%</u> | <u>76-100%</u> |
|------------------------------|-----------|--------------|---------------|---------------|----------------|
| 1. Ciudad Juarez-El Paso     | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 2. Del Rio-Ciudad Acuna      | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 3. Douglas-Agua Prieta       | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 4. Eagle Pass-Piedras Negras | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 5. Matamoros-Brownsville     | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 6. Nogales-Nogales           | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 7. Nuevo Laredo-Laredo       | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 8. Reynosa-McAllen           | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 9. Tijuana-San Diego         | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 10. Other _____              | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |

4. What mode (s) of transportation do you use in transporting goods or supplies across the U.S.-Mexican border? Indicate the percentage of goods shipped by each mode by placing a "x" under the appropriate column.

### Percentage of Goods Shipped by ...

| <u>Mode</u>                      | <u>0%</u> | <u>1-25%</u> | <u>26-50%</u> | <u>51-75%</u> | <u>76-100%</u> |
|----------------------------------|-----------|--------------|---------------|---------------|----------------|
| 1. Aircraft                      | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 2. Maritime Vessel               | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 3. Train                         | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 4. Truck                         | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |
| 5. Intermodal                    |           |              |               |               |                |
| specify below, e.g. train/ truck | [ ]       | [ ]          | [ ]           | [ ]           | [ ]            |

----->  
(Proceed to Quest. #5)

5. What effect does each of the following issues have on your trans-border operations? Rank this effect on a scale of 1 to 5 with 1 being a strong negative effect and 5 being a strong positive effect by placing a "x" under the appropriate column. Comments on any of the items should be made on the lines provided.

| Issue                                                                                          | Strong<br>Negative<br>Effect | Moderate<br>Negative<br>Effect | N/A or<br>No Effect | Moderate<br>Positive<br>Effect | Strong<br>Positive<br>Effect |
|------------------------------------------------------------------------------------------------|------------------------------|--------------------------------|---------------------|--------------------------------|------------------------------|
| 1. Condition and maintenance of Mexican roads                                                  | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 2. Condition and maintenance of U.S. roads                                                     | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 3. Number of trans-border bridges                                                              | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 4. Condition and maintenance of trans-border bridges                                           | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 5. Mexican highway congestion                                                                  | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 6. U.S. highway congestion                                                                     | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 7. Condition of Mexican railways                                                               | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 8. Rail congestion in Mexico                                                                   | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 9. Lack of double-stack train services in Mexico                                               | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 10. Lack of intermodal services at points of entry                                             | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 11. Capacity problems at Mexican airports                                                      | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 12. Congestion problems at Mexican airports                                                    | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 13. Uniformity/ nonuniformity in Mexican customs regulations and enforcement                   | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 14. Delays caused by U.S. documentation processing                                             | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 15. Delays caused by Mexican documentation processing                                          | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 16. Lack of line-item release in Mexican customs                                               | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 17. Inability to deal directly with Mexican customs without the use of a customs broker.       | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 18. Direct access to U.S. customs officials                                                    | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 19. Communication problems between company representative, brokers, and Mexican customs agents | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 20. Delays caused by narcotic checks                                                           | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 21. Ability/ inability of Mexican carriers to meet U.S. safety standards                       | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 22. Lack of adequate liability/insurance coverage on equipment leased to Mexican carriers      | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |
| 23. Shuttle carrier rates                                                                      | [ 1 ]                        | [ 2 ]                          | [ 3 ]               | [ 4 ]                          | [ 5 ]                        |

Comments \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Please comment on the following questions. If additional space is needed, use the back of this sheet or attach additional pages.

6. What public policy initiatives can the U.S. or Mexican government adopt with respect to the provision of transportation services or infrastructure, or resolving regulatory issues to facilitate transborder commerce for your industry?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

THANK YOU FOR YOUR HELP

## Appendix C. Narrative Responses

Provided below are the comments of the survey respondents to questions 5 and 6 of the maquiladora plant manager survey. Question 5 solicited comments on the effects of a list of 25 issues or any other transportation issue that may affect the plant's transborder commerce. Question 6 specifically requested policy initiatives from the respondent that the U.S. or Mexican governments could take to improve transportation, infrastructure, or regulatory processes. (A copy of the survey is included as Appendix B). Responses to questions 5 and 6, by geographic region, appear below.

### Question 5 - Comments on issues affecting transborder operations:

#### Matamoros/Brownsville

1. An item of great ongoing concern and frustration is the unstable national labor union negotiations.
2. The two major problems in trucking are 1) poor attitude of customs officials and 2) lack of adequate U.S. bridge facilities.

#### Reynosa/McAllen

1. The ability/inability of Mexican carriers to meet U.S. safety standards becomes a major issue if DOT stops the Mexican trucks from entering the U.S.
2. conditions and maintenance of Mexican roads

#### Piedras Negras/Eagle Pass

1. Delays caused by Mexican documentation processing--new customs procedure enacted in December 1989 may lead to improvements.

#### Ciudad Juarez/El Paso

1. Need for more transborder bridges--delays caused by narcotics checks (if checked, merchandise almost always damaged).

#### Nuevo Laredo/Laredo

1. Condition and maintenance of U.S. roads
2. Congestion and delays are the main problem entering the U.S., primarily caused by nonuniformity of Mexican customs and road/traffic problems in Mexico

#### Tijuana/San Diego

1. Delays caused by narcotics checks--advocates for binational narcotics checks (both sides of border)
2. Both commercial and pedestrian crossings are too congested, especially at peak hours-- relief is needed.

#### Ciudad Acuna/Del Rio

1. The new Mexican customs importation system is very time-consuming and costly.

#### Mexicali

1. In general, conditions for the maquiladora operations have simplified, improving transit movement.

#### Other

1. (Tecate) The largest problem is with Mexican customs - consistently looking for the mordita.
2. (La Paz) The lack of domestic or foreign carriers has the strongest negative effect.
3. (no location given) Delays caused by narcotics checks ("We deal very seriously with internal narcotics regulations. Border checks cause unnecessary delays and employ border inspectors in a futile exercise.")
4. (no location given) Mexican roads are narrow and dangerous.

**Question 6 - What public policy initiatives can the U.S. or Mexican government adopt with respect to providing transportation services or infrastructure or resolving regulatory issues to facilitate transborder commerce for your industry?**

#### Matamoros/Brownsville

1. Cease pursuing private interests on the pretext that they represent the public interest.
2. Get together and build more bridges.
3. The Mexican government denies requests for material permits because the materials may be bought in Mexico--unfortunately, they may not be available in Matamoros and freight is very expensive.
4. Reduce customs paperwork processing time and reduce traffic congestion by improving truck routes in Mexico and at the border.
5. Mexico should allow U.S. trucks and truckers to move trailers across the border as we allow Mexican trucks and truckers; this would lower transportation costs through minimized delays.
6. uniform interpretation of U.S. import laws

#### Reynosa/McAllen

1. Allow U.S. truckers/trailers to enter Mexico--simplify export/import procedures on both sides.
2. Develop an in-house broker Mexican broker program, allow U.S. trucks into Mexico, update the telephone system, eliminate corruption of the police and customs.
3. Resolve the safety standards issues for Mexican trucks and resolve issues relating to U.S. access to the Mexican border area.
4. Assure that there is an open, competitive transportation market on both sides of the border.



#### Piedras Negras/Eagle Pass

1. Should have free access for trucks to cross border.
2. The new Mexican system is a step in the right direction.

#### Ciudad Juarez/El Paso

1. more cooperation between Mexico and U.S. on uniform paperwork requirements at border crossings
2. Stop requiring trucks to use only the Bridge of the Americas - allow trucks to cross at any bridge in the city.
3. Provide adequate facilities to handle the volume, i.e., enough customs inspection stations, longer hours, etc. Presently this is a huge problem. Find some way of dealing with drug inspections without creating long lines.
4. Limit U.S. legislation which would restrict ingress/egress of Mexican transporters to U.S.
5. consistency up and down the border
6. uniform import/export system
7. Allow Mexican freight companies to operate further inside U.S. border and reduce delays due to narcotics checks (could require companies to get a bond).
8. Eliminate union control of Mexican transportation.

#### Nuevo Laredo/Laredo

1. Open the borders and allow companies to operate their own trucks.
2. The stranglehold by Mexican brokers and CTM must be broken.
3. Build more adequate housing for Mexican workers and employees.
4. Eliminate Mexican graft--better training and staffing at U.S. entry.
5. comparable hours for U.S. and Mexican customs--improve bridge capacity.
6. Automate line release - fix road work.

#### Tijuana/San Diego

1. Speed up customs truck inspection - reduce delays due to inspection of empty returns.
2. Encourage binational narcotic checks.
3. both sides of border too restrictive
4. Enlarge the port of entry.
5. The rapid changes of the last year only sped up the movement of raw materials and finished goods.

6. Allow on-site inspection and certification of shipments.
7. Create "free areas" for the system.
8. Coordinate Mexican and U.S. customs schedules--both sides should add Saturday.

#### Ciudad Acuna/Del Rio

1. Reduce paperwork requirements--continue upgrading and adding to transborder crossings and customs facilities.
2. Standardize work days, hours, and regulations of both countries.
3. Improve Mexican roadways.
4. Mexican infrastructure needs help.
5. Mexico needs to review the new import system--can cause time delays and penalties.
6. Improve Mexican customs/immigration relationship with U.S. companies.

#### Mexicali

1. Find some way to separate larger trucks from smaller load or individual product.
2. Allow U.S. trucks to cross into Mexico--another border crossing is urgently needed.
3. A transit line for maquiladoras only should be established going both ways -- simplify documentation requirements.
4. Allow U.S. trucks to cross into Mexico.
5. another port of entry

#### Nogales

1. Establish better, less cumbersome paperwork system with fewer procedures.
2. Should establish a border "free transport zone" allowing U.S. and foreign vehicles to operate freely on either side of the border, or at least in higher traffic areas.
3. Improve Mexican facilities in order to relieve highway congestion at border crossings.
4. Mexican government should allow U.S. carriers to operate in Mexico thereby reducing freight cost and time.
5. Allow U.S. trucks and drivers to enter into Mexico.
6. U.S. customs officials need to better understand U.S. customs laws.
7. The maquiladora industry should be given easier access to both sides: U.S.-Mexico and Mexico-U.S.

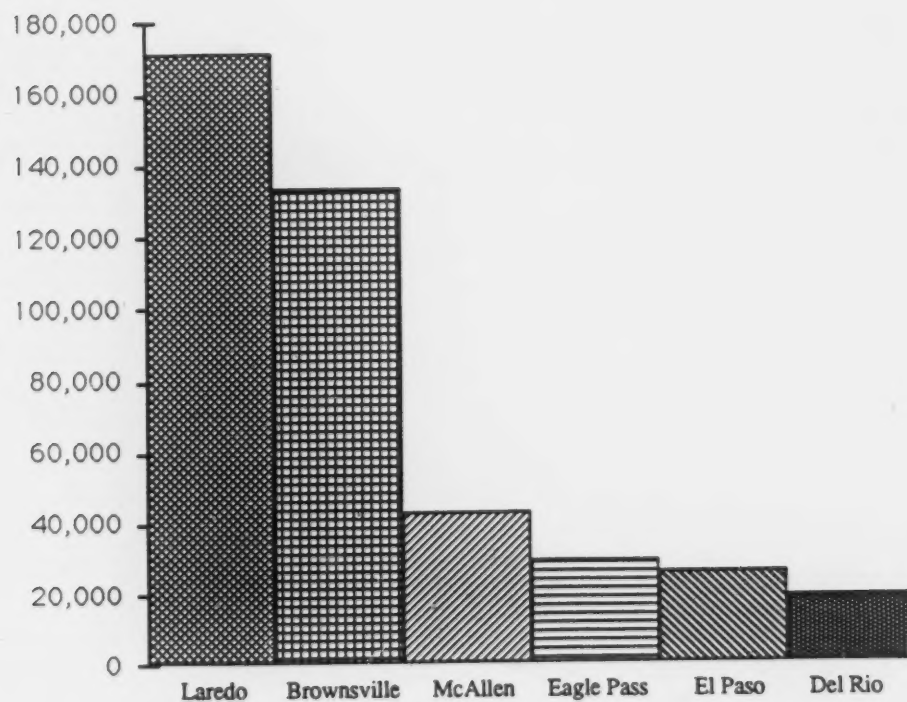
#### Other

1. (Rosarito) U.S. trucks need license to go into Mexico with cargo and back to U.S.
2. (Waco, Texas) Mexico should allow U.S. tractors access to interior of Mexico beyond 22 kilometer checkpoint.
3. (Guadalajara) Simplify documentation process at the Mexican border.
4. (Agua Prieta) The Mexican government should demonopolize transportation in Agua Prieta to combat arbitrarily excessive freight rates and unreliable service. Federal property (customs yards, parking lots) should not affect public or private transportation.
5. (Agua Prieta) Eliminate the monopoly system for imports and exports in the trucking industry.
6. (Ensenada) Need easier transit procedure at both U.S. and Mexican customs facilities.
7. (Muzquiz) Simplify paperwork requirements/procedures.
8. (San Luis) Simplify Mexican customs documentation procedure.
9. (Tecate) Eliminate bribery on the Mexican side and install a few efficient customs people.
10. (no location given) Speed up processing in U.S. formal customs - can take three days to get a truck out. Classification of products should be put in writing to eliminate week-to-week changes in classifications.
11. (no location given) Improve Mexican roads.



## Figure D.1A

### Southbound Truck Shipments from Texas to Mexico

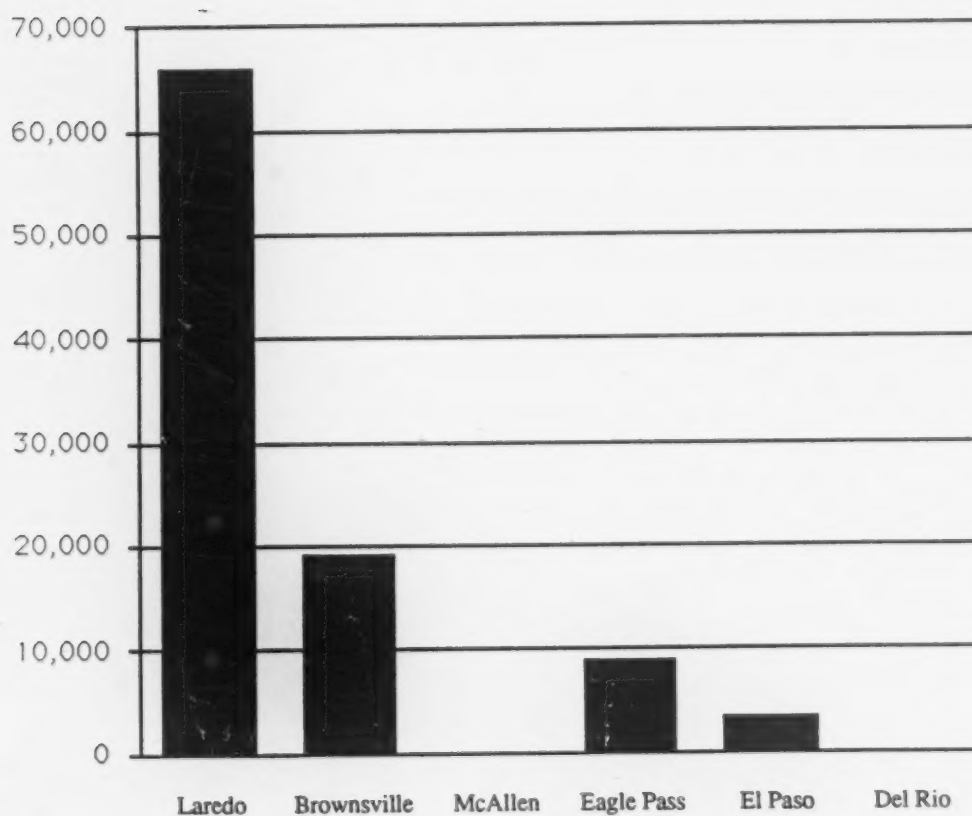


Source: Institute for International Trade, Laredo State University and the Laredo Development Foundation, Laredo, Texas, 1988.



**Figure D.1B**

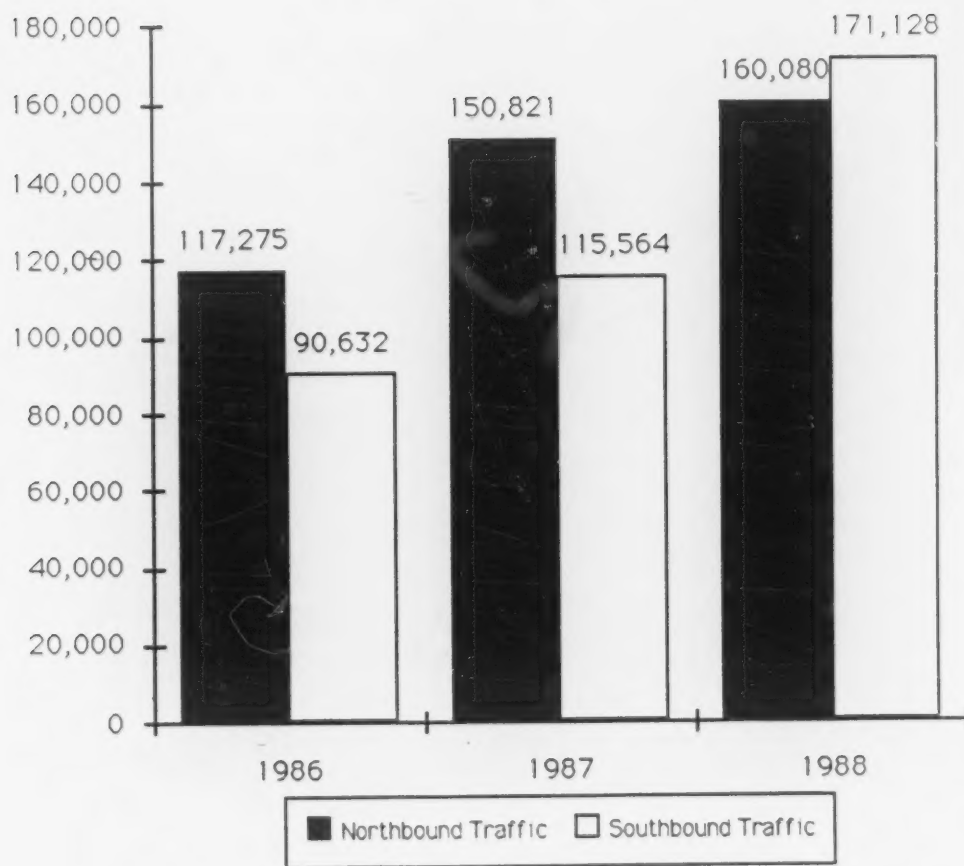
**Southbound Rail Shipments from  
Texas to Mexico**



Source: Institute for International Trade, Laredo State University and the Laredo Development Foundation, Laredo, Texas, 1988.

# Figure D.2

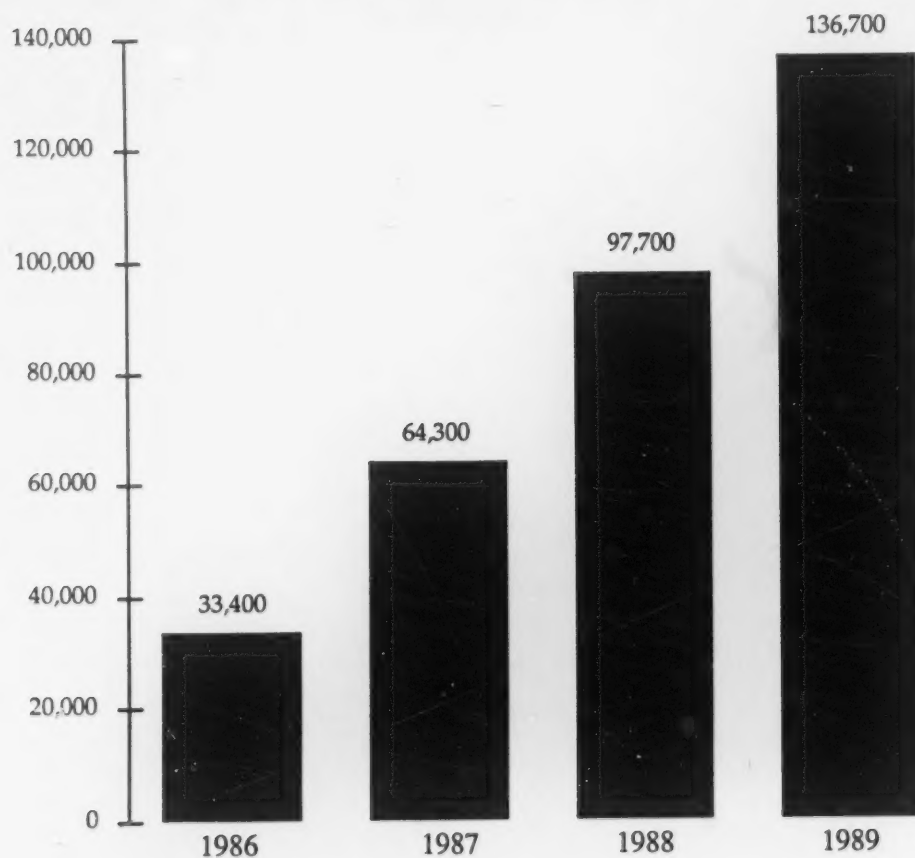
## Loaded Truck Shipments Using U.S. Mexico Bridges



Source: U.S. Customs Service, Laredo Bridge System, and the Laredo Development Foundation, Laredo, Texas, 1988.

**Figure D.3**

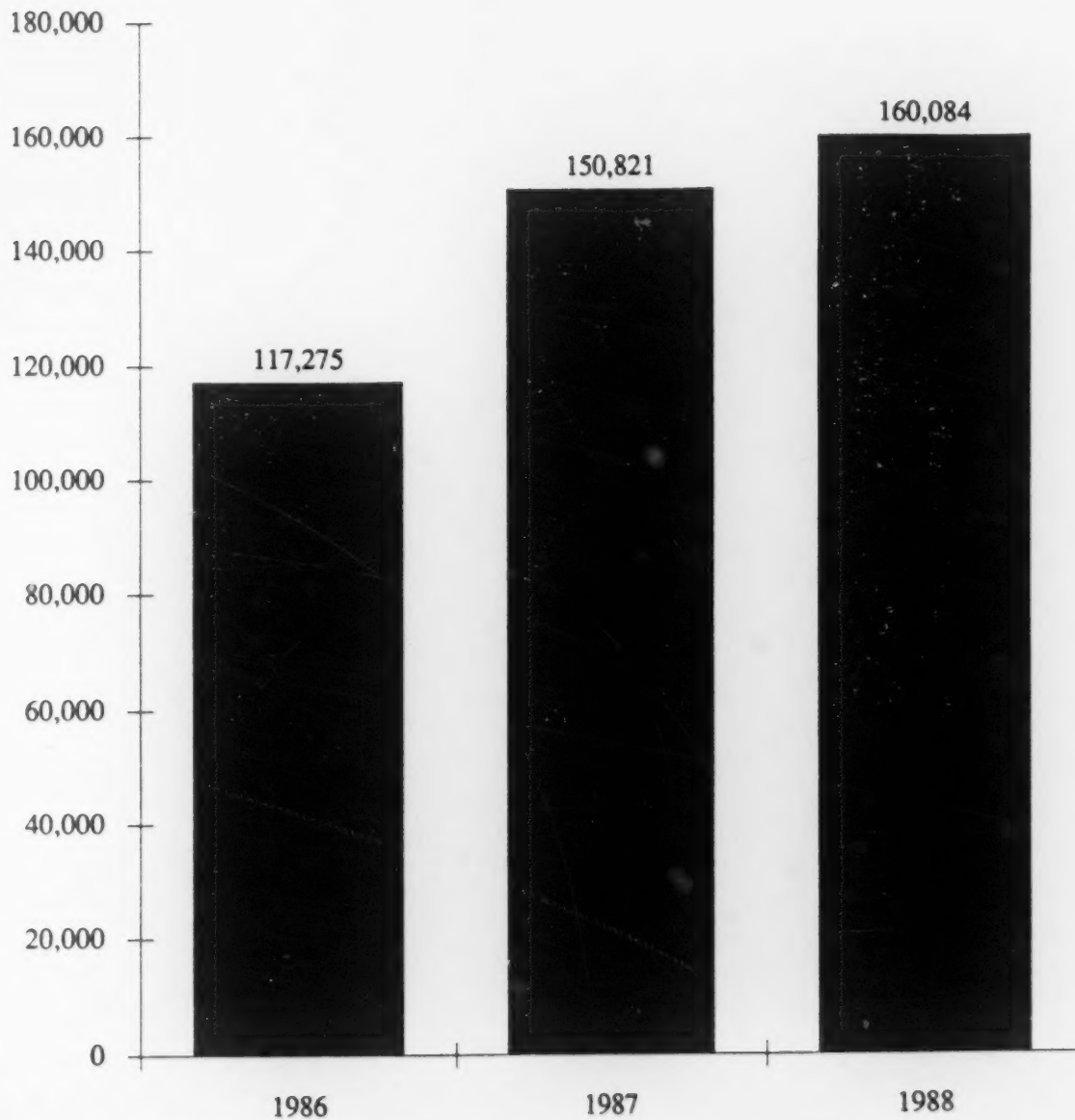
**Combined Northbound and Southbound  
Maquiladora Truck Shipments  
Through Laredo**



Source: Institute for International Trade, Laredo State University and the Laredo Development Foundation, Laredo, Texas, 1988.

Figure D.4A

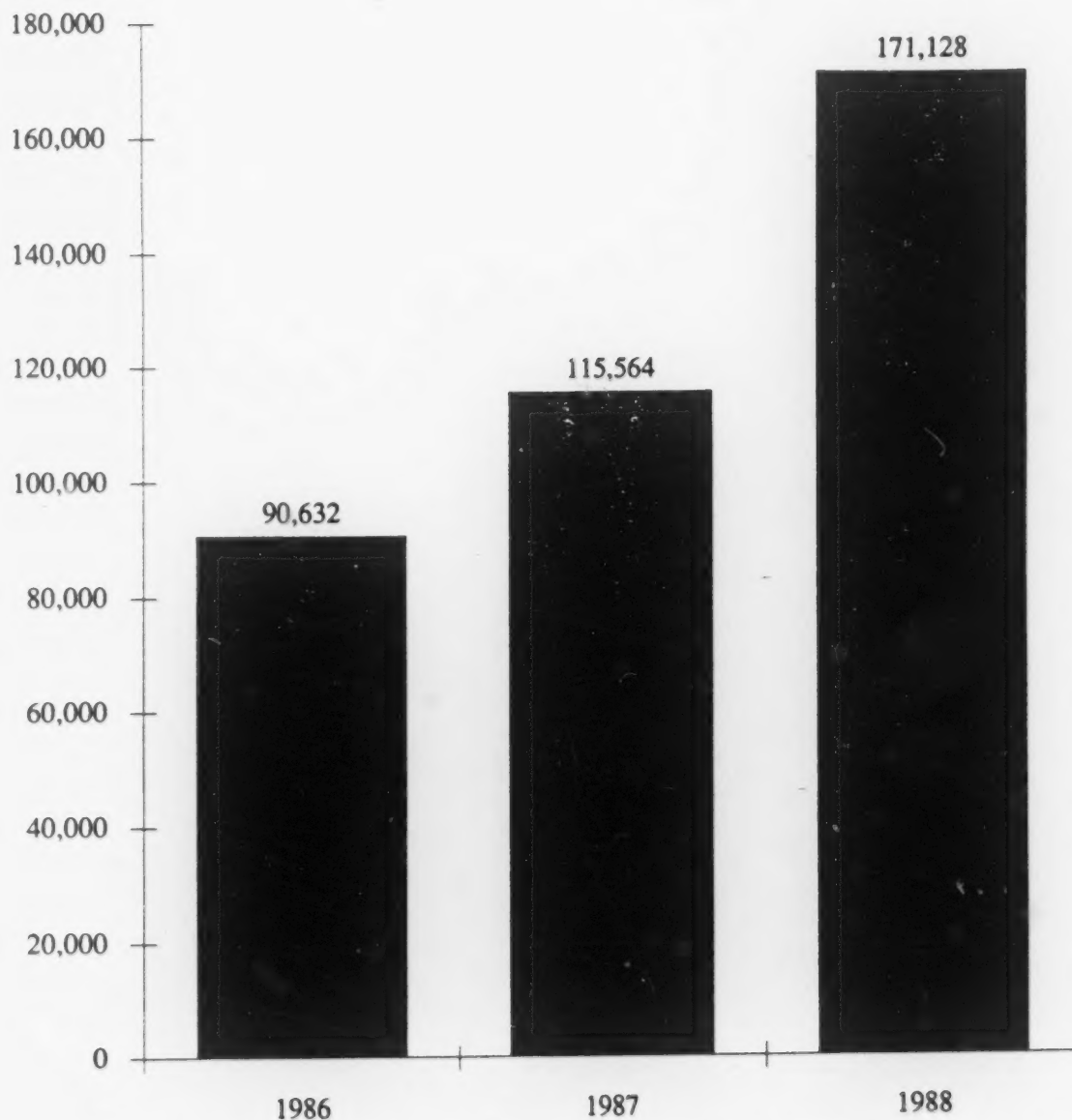
## Number of Truckloads Imported into the U.S. Through Laredo



Source: Laredo Development Foundation, Laredo, Texas.

Figure D.4B

## Number of Truckloads Exported into Mexico Through Laredo



Source: Laredo Development Foundation, Laredo, Texas.



# Table D.1

## Mexican Trade and Texas Border Cities 1988 Truck Shipments to Mexico

|             | <u>Number</u> | <u>Percent</u> |
|-------------|---------------|----------------|
| Laredo      | 171,128       | 39.9           |
| Brownsville | 138,494       | 32.3           |
| McAllen     | 43,197        | 10.1           |
| Eagle Pass  | 29,471        | 6.9            |
| El Paso     | 26,534        | 6.2            |
| Del Rio     | 19,558        | 4.6            |
| TOTAL       | 428,382       | 100.0%         |

## 1988 Rail Car Shipments to Mexico

|             | <u>Number</u> | <u>Percent</u> |
|-------------|---------------|----------------|
| Laredo      | 65,809        | 67.7           |
| Brownsville | 18,983        | 19.5           |
| McAllen     | 0             | 0.0            |
| Eagle Pass  | 9,009         | 9.3            |
| El Paso     | 3,359         | 3.5            |
| Del Rio     | 0             | 0.0            |
| TOTAL       | 97,160        | 100.0%         |

Source: Laredo Development Foundation, Impact of Maquiladoras and Mexican Trade on Laredo Truck Traffic: 1986-1988, Laredo, Texas, Laredo Development Foundation, 1989.

**Table D.2**  
**Total Loaded Truck Shipments Using**  
**Laredo's U.S./Mexico Bridges**

|                                             | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>Two-Year<br/>% Increase<br/>1986-1988</u> |
|---------------------------------------------|-------------|-------------|-------------|----------------------------------------------|
| Northbound<br>(to U.S.)                     | 117,275     | 150,820     | 160,084     | +36.5%                                       |
| Southbound                                  | 90,632      | 115,564     | 171,128     | +88.8%                                       |
| Total                                       | 207,907     | 266,384     | 331,212     | +59.3%                                       |
| Daily Average<br>Trucks Using<br>6-Day Week | 664         | 851         | 1,058       |                                              |

Source: Laredo Development Foundation, Impact of Maquiladoras and Mexican Trade on Laredo Truck Traffic: 1986-1988, Laredo, Texas, Laredo Development Foundation, 1989.

**Table D.3**

**Port of Laredo  
Southbound Truck Shipments by Month  
Exportations into Mexico  
Loaded Trucks and Trailers with Freight**

| <u>TRUCKLOADS</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|-------------------|-------------|-------------|-------------|
| January           | 7,752       | 7,394       | 10,995      |
| February          | 7,800       | 7,977       | 12,178      |
| March             | 7,326       | 9,463       | 13,480      |
| April             | 8,009       | 8,724       | 12,783      |
| May               | 7,512       | 8,914       | 13,743      |
| June              | 7,815       | 10,366      | 15,115      |
| July              | 8,193       | 10,526      | 14,300      |
| August            | 7,044       | 9,086       | 15,522      |
| September         | 6,939       | 9,744       | 14,532      |
| October           | 8,159       | 11,593      | 16,190      |
| November          | 6,776       | 10,576      | 16,435      |
| December          | 7,307       | 11,201      | 15,855      |
| TOTAL             | 90,632      | 115,564     | 171,128     |

Source: Laredo Development Foundation, Economic Impact of Maquiladoras in Nuevo Laredo on Laredo, Texas, and the United States, Laredo, Texas: Laredo Development Foundation, 1987.

**Table D.4**

**Daily Average Truck Shipments Accounted for by Maquiladoras**

| NORTHBOUND         |             |             |             |
|--------------------|-------------|-------------|-------------|
|                    | <u>1986</u> | <u>1987</u> | <u>1988</u> |
| Total Trucks       | 375         | 482         | 511         |
| Maquiladora Trucks | 57          | 110         | 168         |
| % Maquiladora      | 15.2%       | 22.8%       | 32.9%       |

| SOUTHBOUND         |             |             |             |
|--------------------|-------------|-------------|-------------|
|                    | <u>1986</u> | <u>1987</u> | <u>1988</u> |
| Total Trucks       | 290         | 369         | 547         |
| Maquiladora Trucks | 49          | 95          | 144         |
| % Maquiladora      | 16.9%       | 25.7%       | 26.3%       |

NOTE: Daily average assumes 6-day week or 313 days per year.

Source: Laredo Development Foundation, Impact of Maquiladoras and Mexican Trade on Laredo Truck Traffic: 1986-1988, Laredo, Texas: Laredo Development Foundation, 1989.

**Table D.5**  
**Port of Laredo**  
**1988 Maquiladora Truck Shipments**

| NORTHBOUND                        |                     |                   |                 |
|-----------------------------------|---------------------|-------------------|-----------------|
|                                   | <u>Nuevo Laredo</u> | <u>Nuevo Leon</u> | <u>Combined</u> |
| Daily Avg.<br>Trucks per<br>Plant | 1.61                | 1.17              | 1.40            |
| 1988 Outbound<br>Shipments        | 31,748              | 20,836            | 52,584          |

| SOUTHBOUND                        |                     |                   |                 |
|-----------------------------------|---------------------|-------------------|-----------------|
|                                   | <u>Nuevo Laredo</u> | <u>Nuevo Leon</u> | <u>Combined</u> |
| Daily Avg.<br>Trucks per<br>Plant | 1.48                | 0.89              | 1.29            |
| 1988 Inbound<br>Shipments         | 29,184              | 15,888            | 45,072          |

1988 Total Maquiladora Outbound & Inbound Shipments

| <u>Nuevo Laredo</u> | <u>Nuevo Leon</u> | <u>Combined</u> |
|---------------------|-------------------|-----------------|
| 60,932              | 36,724            | 97,656          |

Source: Laredo Development Foundation, Impact of Maquiladoras and Mexican Trade on Laredo Truck Traffic: 1986-1988, Laredo, Texas: Laredo Development Foundation, 1989.



Table D.6

Port of Laredo  
Total Loaded Truck Shipments Using  
Laredo's U.S./Mexico Bridges

|                                             | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>Two-Year<br/>% Increase<br/>1986-1988</u> |
|---------------------------------------------|-------------|-------------|-------------|----------------------------------------------|
| Northbound<br>(to U.S.)                     | 117,275     | 150,820     | 160,084     | +36.5%                                       |
| Southbound<br>(to Mexico)                   | 90,632      | 115,564     | 171,128     | +88.8%                                       |
| TOTAL                                       | 207,907     | 266,384     | 331,212     | +59.3%                                       |
| Daily Average<br>Trucks Using<br>6-Day Week | 664         | 851         | 1,058       |                                              |

Source: Laredo Development Foundation, Impact of Maquiladoras and Mexican Trade on Laredo Truck Traffic: 1986-1988, Laredo, Texas, Laredo Development Foundation, 1989.

**Table D.7**

**Port of Laredo  
Origin/Destination of Truck Shipments  
United States Regions**

| <u>Origin</u>          |               | <u>Destination</u>       |               |
|------------------------|---------------|--------------------------|---------------|
| Southbound into Laredo |               | Northbound out of Laredo |               |
| Southeast              | 19.0%         | Southeast                | 22.9%         |
| Northeast              | 38.3%         | Northeast                | 27.2%         |
| Central                | 30.2%         | Central                  | 29.2%         |
| Southwest              | 7.1%          | Southwest                | 16.0%         |
| West                   | 5.4%          | West                     | 4.7%          |
| <b>TOTAL</b>           | <b>100.0%</b> | <b>TOTAL</b>             | <b>100.0%</b> |

**MAJOR LAREDO HIGHWAYS**

| <u>Origin</u>          |               | <u>Destination</u>       |               |
|------------------------|---------------|--------------------------|---------------|
| Southbound into Laredo |               | Northbound out of Laredo |               |
| I.H. 35                | 83.5%         | I.H. 35                  | 78.4%         |
| U.S. 59                | 14.3%         | U.S. 59                  | 18.1%         |
| U.S. 83                | 2.2%          | U.S. 83                  | 3.5%          |
| <b>TOTAL</b>           | <b>100.0%</b> | <b>TOTAL</b>             | <b>100.0%</b> |

I.H. 35- North through San Antonio to central, west, and northeast  
 U.S. 59- East through Houston to southeast  
 U.S. 83- Southeast to McAllen and Brownsville

**Mexican Cities**

| <u>Origin</u>        |               | <u>Destination</u>     |               |
|----------------------|---------------|------------------------|---------------|
| Northbound into U.S. |               | Southbound into Mexico |               |
| Monterrey            | 40.3%         | Monterrey              | 49.6%         |
| Mexico City          | 36.0%         | Mexico City            | 33.3%         |
| Nuevo Laredo         | 17.7%         | Nuevo Laredo           | 14.1%         |
| Guadalajara          | 6.0%          | Guadalajara            | 3.0%          |
| <b>TOTAL</b>         | <b>100.0%</b> | <b>TOTAL</b>           | <b>100.0%</b> |

Source: Laredo Development Foundation, Impact of Maquiladoras and Mexican Trade on Laredo Truck Traffic: 1986-1988, Laredo, Texas, Laredo Development Foundation, 1989.

**Table D.8**

Southern Pacific Thru Rates from Laredo

| <u>Destination</u>  | <u>Rate</u> |
|---------------------|-------------|
| Birmingham, AL      | 850         |
| Huntsville, AL      | 825         |
| Mobile, AL          | 878         |
| Phoenix, AZ         | 1,100       |
| Tuscon, AZ          | 1,100       |
| Pine Bluff, AR      | 600         |
| Fresno, CA          | 1,350       |
| Los Angeles, CA     | 1,125       |
| Modesto, CA         | 1,350       |
| Oakland, CA         | 1,350       |
| Roseville, CA       | 1,350       |
| Stockton, CA        | 1,350       |
| Belchosen, FL       | 1,440       |
| Cockrockle, FL      | 1,358       |
| Ft. Lauderdale, FL  | 1,492       |
| Ft. Pierce, FL      | 1,403       |
| Jacksonville, FL    | 1,136       |
| Miami, FL           | 1,460       |
| West Palm Beach, FL | 1,438       |
| Albany, GA          | 1,025       |
| Dalton, GA          | 865         |
| Macon, GA           | 1,015       |
| Savannah, GA        | 1,187       |
| East St. Louis, IL  | 650         |
| Peoria, IL          | 1,200       |
| Georgetown, KY      | 972         |
| Louisville, KY      | 840         |
| New Orleans, LA     | 575         |
| Shreveport, LA      | 575         |
| Detroit, MI         | 1,079       |
| Charlotte, NC       | 1,110       |
| Greensboro, NC      | 1,190       |
| Buffalo, NY         | 1,301       |
| Bellevue, OH        | 1,025       |
| Cincinnati, OH      | 875         |
| Columbus, OH        | 1,140       |
| Portland, OR        | 1,550       |
| Chattanooga, TN     | 850         |
| Greenville, TN      | 1,025       |
| Knoxville, TN       | 969         |
| Memphis, TN         | 600         |
| Dallas, TX          | 480         |
| El Paso, TX         | 855         |
| Houston, TX         | 480         |
| San Antonio, TX     | 360         |
| Alexandria, VA      | 1,257       |
| Norfolk, VA         | 1,257       |

Source: Letter from Southern Pacific to Professor Leigh Boske, November 27, 1989.

# Table D.9

## Production of Transportation Services

|                                                  | Millions<br>of Pesos<br>1970 | Percentage of<br>All Services | Millions<br>of Pesos<br>1975 | Percentage of<br>All Services | Millions of<br>Pesos<br>1978 | Percentage of<br>All Services |
|--------------------------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|
| Agriculture, Forestry<br>and Fishing             | 375.5                        | 4.0                           | 521.7                        | 3.1                           | 572.0                        | 2.8                           |
| Mining                                           | 247.6                        | 2.7                           | 358.5                        | 2.1                           | 477.8                        | 2.3                           |
| Manufacturing                                    | 4,807.5                      | 51.5                          | 8,152.2                      | 48.2                          | 9,595.0                      | 46.3                          |
| Construction                                     | 1,832.0                      | 19.6                          | 3,615.3                      | 21.4                          | 4,163.2                      | 20.1                          |
| Electricity                                      | 10.5                         | 0.1                           | 9.6                          | 0.1                           | 14.8                         | 0.1                           |
| Commerce, Restaurants,<br>and Hotels             | 421.5                        | 4.5                           | 2,143.5                      | 12.7                          | 3,191.2                      | 15.4                          |
| Transportation, Warehousing and<br>Communication | 853.7                        | 9.2                           | 1,123.7                      | 6.6                           | 1,466.8                      | 7.1                           |
| Financial Services and Real Estate               | 135.8                        | 1.5                           | 194.1                        | 1.1                           | 225.5                        | 1.1                           |
| Community, Social, and Personal<br>Services      | 640.5                        | 6.9                           | 784.7                        | 4.6                           | 1,030.2                      | 5.0                           |
| <b>Total</b>                                     | <b>9,324.6</b>               | <b>100.0</b>                  | <b>16,903.3</b>              | <b>100.0</b>                  | <b>20,736.5</b>              | <b>100.0</b>                  |
| <b>EXPORTS</b>                                   | <b>819.7</b>                 | <b>8.8</b>                    | <b>1,197.1</b>               | <b>7.1</b>                    | <b>1,700.6</b>               | <b>8.2</b>                    |

Source: Victor Islas, "Estructura y Desarrollo del Sector Transporte en México," Colegio de México, Mexico City, Mexico, 1989, p.64.

**Table D.10****Consolidated Budget of Ferrocarriles Nacionales de Mexico (FNM)**

|      | Income  | Expenses | Balance | Income/<br>Expenses<br>% |
|------|---------|----------|---------|--------------------------|
| 1970 | 2,819   | 3,589    | -770    | 78.5                     |
| 1971 | 2,699   | 3,885    | -1186   | 69.5                     |
| 1972 | 2,939   | 4,165    | -1226   | 70.6                     |
| 1973 | 3,262   | 4,860    | -1598   | 67.1                     |
| 1974 | 3,985   | 6,666    | -2681   | 59.8                     |
| 1975 | 5,665   | 7,975    | -2310   | 71.0                     |
| 1976 | 5,634   | 9,295    | -3661   | 60.6                     |
| 1977 | 8,321   | 13,219   | -4898   | 62.9                     |
| 1978 | 9,754   | 14,156   | -4402   | 68.9                     |
| 1979 | 11,863  | 17,668   | -5805   | 67.1                     |
| 1980 | 15,584  | 24,552   | -8968   | 63.5                     |
| 1981 | 18,731  | 37,822   | -19091  | 49.5                     |
| 1982 | 30,280  | 52,609   | -22329  | 57.6                     |
| 1983 | 65,254  | 116,847  | -51593  | 55.8                     |
| 1984 | 143,468 | 162,332  | -18864  | 88.4                     |

Victor Islas, "Estructura y Desarrollo del Sector Transporte en Mexico," Colegio de Mexico, Mexico City, Mexico, 1989, p.58.



Table D.11

## Mexican Operator Access to U.S. Border Commercial Zones

| Border Community          | Shuttle |         | Line   |         | Private |         | Number of Mexican Shuttles |
|---------------------------|---------|---------|--------|---------|---------|---------|----------------------------|
|                           | Actual  | Desired | Actual | Desired | Actual  | Desired |                            |
| Brownsville/Matamoros     | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 4                          |
| McAllen/Reynosa           | Yes     | Yes     | No     | Yes     | Yes     | Yes     | 20                         |
| Rio Grande City/Camargo   | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 2                          |
| Laredo/Nuevo Laredo       | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 4                          |
| Eagle Pass/Piedras Negras | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 2                          |
| Del Rio/ Acuna            | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 3                          |
| Presidio/Ojinaga          | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     |                            |
| El Paso/Ciudad Juarez     | Yes     | No      | Yes    | Yes     | Yes     | Yes     | 25                         |
| Columbus/Palomas          | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | NA                         |
| Nogales/Nogales           | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 1                          |
| Yuma/San Luis             | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 4                          |
| Calexico/Mexicali         | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 12                         |
| San Ysidro/Tijuana        | Yes     | Yes     | Yes    | Yes     | Yes     | Yes     | 5                          |

Source: Representative of the BTA Transportation Committee and the Institute for Manufacturing and Materials Management, Transportation Survey, UTEP, 1988.

Table D.12

## U.S. Carrier Access To Mexican Border Commercial Zones

| Border Community          | For Hire |         | Private |         | Maquilas |         | Number of<br>Maquila Plants |
|---------------------------|----------|---------|---------|---------|----------|---------|-----------------------------|
|                           | Actual   | Desired | Actual  | Desired | Actual   | Desired |                             |
| Brownsville/Matamoros     | No       | Yes     | No      | Yes     | Yes      | Yes     | 62                          |
| McAllen/Reynosa           | Yes      | Yes     | No      | Yes     | Yes      | Yes     | 20                          |
| Rio Grande City/Camargo   | Yes      | Yes     | Yes     | Yes     | Yes      | Yes     | 10                          |
| Laredo/Nuevo Laredo       | Yes      | Yes     | Yes     | Yes     | Yes      | Yes     | 45                          |
| Eagle Pass/Piedras Negras | Yes      | Yes     | Yes     | Yes     | Yes      | Yes     | 25                          |
| Del Rio/Acuna             | Yes      | Yes     | Yes     | Yes     | Yes      | Yes     | 33                          |
| Presidio/Ojinaga          | Yes      | Yes     | Yes     | Yes     | Yes      | Yes     |                             |
| El Paso/Ciudad Juarez     | No       | Yes     | Yes     | Yes     | Yes      | Yes     | 200                         |
| Columbus/Palomas          | Yes      | Yes     | Yes     | Yes     | Yes      | Yes     | 2                           |
| Nogales/Nogales           | No       | Yes     | No      | Yes     | No       | Yes     | 66                          |
| Yuma/San Luis             | Yes      | Yes     | Yes     | Yes     | Yes      | Yes     | 8                           |
| Calexico/Mexicali         | No       | Yes     | No      | Yes     | No       | Yes     | 100                         |
| San Ysidro/Tijuana        | No       | Yes     | No      | Yes     | No       | Yes     | 390                         |

Source: Representative of the BTA Transportation Committee and The Institute for Manufacturing and Materials Management, Transportation Survey, UTEP, 1988.

Table D.13

## Freight Rates by Mexican Carriers

| Border Community          | Transborder Commercial Zones |         |         | Mexico's Interior Cities |        |              |             |
|---------------------------|------------------------------|---------|---------|--------------------------|--------|--------------|-------------|
|                           | Mexican                      | U.S.    | Empty   | First                    | Second | Guada-lajara | Mexico D.F. |
| Brownsville/Matamoros     | 164                          | NA      | 51      | 410                      | 410    | 825          | 825         |
| McAllen/Reynosa           | 100-150                      | NA      | 100-150 | 440                      | 500    | 880          | 1100        |
| Rio Grande City/Camargo   | 60-80                        | NA      | NA      |                          |        |              |             |
| Laredo/Nuevo Laredo       | 40-75                        | 50-75   | 40      | 375                      | NA     | 650          | 800         |
| Eagle Pass/Piedras Negras | 50-150                       | 50-150  | 50-150  | 460                      | 525    | 675          | 675         |
| Del Rio/ Acuna            | 100-160                      | 100-160 | 50-80   | NA                       | NA     | NA           | NA          |
| Presidio/Ojinaga          |                              |         |         |                          |        |              |             |
| El Paso/Ciudad Juarez     | 60-125                       | NA      | 40      | 460                      | 765    | 1030         | 1500        |
| Columbus/Palomas          | NA                           | NA      | NA      | NA                       | NA     | NA           | NA          |
| Nogales/Nogales           | 100-150                      | NA      | NA      | 300                      | 400    | NA           | NA          |
| Yuma/San Luis             | 250                          | NA      | NA      | NA                       | NA     | NA           | NA          |
| Calexico/Mexicali         | 90                           | 90      | 25      | NA                       | NA     | NA           | NA          |
| San Ysidro/Tijuana        | 100-160                      | NA      | 80      | NA                       | NA     | NA           | NA          |

Source: Representative of the BTA, Transportation Committee and The Institute for Manufacturing and Materials and Management, Transportation Survey, UTEP, 1988.

Table D.14  
Motor Units, Tons Transported, and Kilometer-Tons Transported  
1989

| Vehicle Class                        | Number of Vehicles | Tons Transported<br>(in thousands) | Kilometer -Tons<br>Transported |
|--------------------------------------|--------------------|------------------------------------|--------------------------------|
| Trucks with two axles (c-2)          | 61,080             | 127,657                            | 22,978,260                     |
| Trucks with three axles (c-3)        | 26,229             | 63,590                             | 14,307,750                     |
| Semi-tractors with two axles (t-2)   | 2,891              | 7,337                              | 2,934,800                      |
| Semi-tractors with three axles (t-3) | 29,514             | 109,349                            | 65,609,400                     |
| <b>TOTAL</b>                         | <b>119,714</b>     | <b>307,933</b>                     | <b>105,830,210</b>             |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1989.

Table D.15  
Composition of Vehicle Fleet  
by Vehicle Class and Type of Service  
1989

| Vehicle Class                        | Regular Freight | Specialized Freight | Total          |
|--------------------------------------|-----------------|---------------------|----------------|
| Trucks                               |                 |                     |                |
| Trucks with two axles (c-2)          | 18,006          | 43,074              | 61,080         |
| Trucks with three axles (c-3)        | 14,026          | 12,203              | 26,229         |
| Tractors with two axles (t-2)        | 1,960           | 931                 | 2,891          |
| Tractors with three axles (t-3)      | 18,261          | 11,253              | 29,514         |
| <b>TOTAL</b>                         | <b>52,253</b>   | <b>67,461</b>       | <b>119,714</b> |
| Trailers                             |                 |                     |                |
| Semi-trailers with one axle (s-1)    | 260             | 389                 | 649            |
| Semi-trailers with two axles (s-2)   | 19,609          | 9,618               | 29,227         |
| Semi-trailers with three axles (s-3) | 4,489           | 4,454               | 8,943          |
| Trailers with two axles (r-2)        | 108             | 186                 | 294            |
| <b>TOTAL</b>                         | <b>24,466</b>   | <b>14,647</b>       | <b>39,113</b>  |
| <b>COMBINED TOTALS</b>               | <b>76,719</b>   | <b>82,108</b>       | <b>158,827</b> |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1989.



Table D.16  
Composition of Vehicle Fleet  
by Vehicle Class and Type of Service  
1988

| Vehicle Class                        | Regular Freight | Specialized Freight | Total          |
|--------------------------------------|-----------------|---------------------|----------------|
| Trucks                               |                 |                     |                |
| Trucks with two axles (c-2)          | 17,433          | 41,704              | 59,137         |
| Trucks with three axles (c-3)        | 13,580          | 11,816              | 25,396         |
| Tractors with two axles (t-2)        | 1,897           | 901                 | 2,798          |
| Tractors with three axles (t-3)      | 17,674          | 10,892              | 28,566         |
| <b>TOTAL</b>                         | <b>50,584</b>   | <b>65,313</b>       | <b>115,897</b> |
| Trailers                             |                 |                     |                |
| Semi-trailers with one axle (s-1)    | 250             | 373                 | 623            |
| Semi-trailers with two axles (s-2)   | 18,804          | 9,223               | 28,027         |
| Semi-trailers with three axles (s-3) | 4,302           | 4,268               | 8,570          |
| Trailers with two axles (r-2)        | 105             | 181                 | 286            |
| <b>TOTAL</b>                         | <b>23,461</b>   | <b>14,045</b>       | <b>37,506</b>  |
| <b>COMBINED TOTALS</b>               | <b>74,045</b>   | <b>79,358</b>       | <b>153,403</b> |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

Table D.17  
Tons of Cargo Transported by Vehicle Class  
1988

(in thousands)

| Vehicle Class                   | Regular Freight | Specialized Freight | Total          |
|---------------------------------|-----------------|---------------------|----------------|
| Trucks with two axles (c-2)     | 36,435          | 87,161              | 123,596        |
| Trucks with three axles (c-3)   | 32,898          | 28,624              | 61,522         |
| Tractors with two axles (t-2)   | 4,815           | 2,287               | 7,102          |
| Tractors with three axles (t-3) | 65,986          | 40,664              | 106,650        |
| <b>TOTAL</b>                    | <b>140,134</b>  | <b>158,736</b>      | <b>298,870</b> |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

Table D.18  
Vehicles, Tons Transported, and Kilometer-Tons of Cargo  
by Vehicle Class  
1988

| Vehicle Class                   | Number of Vehicles | Tons Transported<br>(in thousands) | Kilometer-Tons Transported |
|---------------------------------|--------------------|------------------------------------|----------------------------|
| Trucks with two axles (c-2)     | 59,137             | 123,596                            | 22,247,340                 |
| Trucks with three axles (c-3)   | 25,396             | 61,522                             | 13,842,409                 |
| Tractors with two axles (t-2)   | 2,798              | 7,102                              | 2,840,529                  |
| Tractors with three axles (t-3) | 28,566             | 106,650                            | 63,990,697                 |
| <b>TOTAL</b>                    | <b>115,897</b>     | <b>298,870</b>                     | <b>102,920,975</b>         |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

Table D.19  
Number of Vehicles, Tons of Specialized Cargo Transported,  
and Kilometer-Tons of Specialized Cargo Transported  
by Vehicle Class  
1988

| Vehicle Class                   | Number of Vehicles | Tons Transported<br>(in thousands) | Kilometer-Tons Transported<br>(in thousands) |
|---------------------------------|--------------------|------------------------------------|----------------------------------------------|
| Trucks with two axles (c-2)     | 41,704             | 87,161                             | 15,689,044                                   |
| Trucks with three axles (c-3)   | 11,816             | 28,624                             | 6,440,459                                    |
| Tractors with two axles (t-2)   | 901                | 2,287                              | 914,695                                      |
| Tractors with three axles (t-3) | 10,892             | 40,664                             | 24,399,169                                   |
| <b>TOTAL</b>                    | <b>65,313</b>      | <b>158,736</b>                     | <b>47,443,367</b>                            |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

Table D.20  
Number of Vehicles, Tons of Regular Cargo Transported,  
and Kilometer-Tons of Regular Cargo Transported  
by Vehicle Class  
1988

| Vehicle Class                   | Number of Vehicles | Tons Transported<br>(in thousands) | Kilometer-Tons Transported<br>(in thousands) |
|---------------------------------|--------------------|------------------------------------|----------------------------------------------|
| Trucks with two axles (c-2)     | 17,433             | 36,435                             | 6,558,296                                    |
| Trucks with three axles (c-3)   | 13,580             | 32,898                             | 7,401,950                                    |
| Tractors with two axles (t-2)   | 1,897              | 4,815                              | 1,925,834                                    |
| Tractors with three axles (t-3) | 17,674             | 65,986                             | 39,591,528                                   |
| <b>TOTAL</b>                    | <b>50,584</b>      | <b>140,134</b>                     | <b>55,477,608</b>                            |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.



Table D.21  
Composition of Regular Cargo Vehicle Fleet  
by Route and Vehicle Class  
1988

| Route             | Total         | C-2           | C-3           | T-2          | T-3           | S-1        | S-2           | S-3          | R-2        |
|-------------------|---------------|---------------|---------------|--------------|---------------|------------|---------------|--------------|------------|
| Pacific           | 13,786        | 3,456         | 2,702         | 280          | 3,127         | 39         | 3,388         | 771          | 23         |
| North             | 10,269        | 2,094         | 2,173         | 265          | 2,456         | 34         | 2,631         | 602          | 14         |
| Northcentral      | 12,468        | 1,820         | 1,885         | 342          | 3,696         | 46         | 3,761         | 905          | 13         |
| Northeast         | 7,181         | 1,925         | 937           | 226          | 1,768         | 26         | 1,862         | 429          | 8          |
| Northwest 1       | 2,812         | 348           | 746           | 76           | 708           | 7          | 751           | 171          | 5          |
| Northwest 2       | 3,838         | 504           | 1,181         | 95           | 883           | 12         | 941           | 216          | 6          |
| Northwest 3       | 1,091         | 335           | 272           | 27           | 196           | 6          | 207           | 43           | 5          |
| Gulf              | 2,287         | 698           | 368           | 56           | 459           | 9          | 564           | 130          | 3          |
| Southeast         | 7,466         | 2,428         | 1,155         | 189          | 1,573         | 25         | 1,694         | 391          | 11         |
| Southeast Central | 6,511         | 2,082         | 965           | 188          | 1,369         | 26         | 1,502         | 343          | 9          |
| South             | 6,336         | 1,743         | 1,196         | 153          | 1,412         | 20         | 1,503         | 301          | 8          |
| <b>TOTAL</b>      | <b>74,045</b> | <b>17,433</b> | <b>13,580</b> | <b>1,897</b> | <b>17,674</b> | <b>250</b> | <b>18,804</b> | <b>4,302</b> | <b>105</b> |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

**Table D.22**  
**Tons of Regular Cargo Transported**  
**by Route and Vehicle Class**

**1988**

(in thousands)

| Route             | Total          | C-2           | C-3           | T-2          | T-3           |
|-------------------|----------------|---------------|---------------|--------------|---------------|
| Pacific           | 26,181         | 7,245         | 6,545         | 715          | 11,676        |
| North             | 19,479         | 4,373         | 5,265         | 672          | 9,169         |
| NorthCentral      | 23,060         | 3,825         | 4,567         | 869          | 13,799        |
| NorthEast         | 13,448         | 4,007         | 2,269         | 573          | 6,599         |
| Northwest 1       | 5,375          | 733           | 1,808         | 192          | 2,642         |
| Northwest 2       | 7,453          | 1,054         | 2,861         | 240          | 3,298         |
| Northwest 3       | 2,161          | 698           | 659           | 68           | 736           |
| Gulf              | 4,202          | 1,458         | 890           | 142          | 1,712         |
| Southeast         | 14,219         | 5,066         | 2,798         | 481          | 5,874         |
| Southeast Central | 12,358         | 4,335         | 2,338         | 476          | 5,209         |
| South             | 12,198         | 3,641         | 2,898         | 387          | 5,272         |
| <b>TOTAL</b>      | <b>140,134</b> | <b>36,435</b> | <b>32,898</b> | <b>4,815</b> | <b>65,986</b> |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

**Table D.23**  
**Kilometer-Tons of Regular Cargo Transported**  
**by Route and Vehicle Class**  
**1988**  
(in thousands)

| Route             | Total             | C-2              | C-3              | T-2              | T-3               |
|-------------------|-------------------|------------------|------------------|------------------|-------------------|
| Pacific           | 10,061,954        | 1,300,147        | 1,472,759        | 284,256          | 7,004,792         |
| North             | 7,742             | 787,763          | 1,184,421        | 269,028          | 5,501,686         |
| Northcentral      | 10,338,735        | 684,684          | 1,027,443        | 347,198          | 8,279,410         |
| Northeast         | 5,424,841         | 724,185          | 510,724          | 229,435          | 3,960,497         |
| Northwest 1       | 2,200,681         | 130,918          | 406,617          | 77,155           | 1,585,991         |
| Northwest 2       | 2,907,776         | 189,605          | 643,719          | 96,444           | 1,978,008         |
| Northwest 3       | 740,754           | 126,027          | 148,257          | 27,410           | 439,060           |
| Gulf              | 1,548,228         | 262,588          | 200,583          | 56,851           | 1,028,206         |
| Southeast         | 5,258,511         | 913,414          | 629,547          | 191,873          | 3,523,677         |
| Southeast Central | 4,627,271         | 783,248          | 525,985          | 190,858          | 3,127,180         |
| South             | 4,625,959         | 655,717          | 651,895          | 155,326          | 3,163,021         |
| <b>TOTAL</b>      | <b>55,477,608</b> | <b>6,558,296</b> | <b>7,401,950</b> | <b>1,925,834</b> | <b>39,591,528</b> |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Auto transporte Federal. Mexico City, Mexico, 1988.

Table D.24  
Specialized Cargo Fleet  
by Specialized Cargo Type  
1988

| Specialized Cargo                                    | No. of Vehicles |
|------------------------------------------------------|-----------------|
| General furniture and moving                         | 2,992           |
| Perishable goods in refrigerated vehicles            | 595             |
| Construction materials and gravel                    | 3,704           |
| Unprocessed rural produce and animals                | 48,829          |
| Bottled liquids                                      | 810             |
| Tankers for transportation of fluids                 | 5,505           |
| Industrial gas cylinders                             | 10              |
| Tow trucks                                           | 1,090           |
| Petrochemical equipment                              | 266             |
| Telecommunication and electronic equipment           | 165             |
| Chemical products                                    | 27              |
| Automobile carriers                                  | 443             |
| High-density loads and oversized metallic structures | 669             |
| Explosives                                           | 13              |
| Glass                                                | 56              |
| Movie industry                                       | 70              |
| Other specialties                                    | 69              |
| <b>TOTAL FOR SPECIALIZED CARGO</b>                   | <b>65,313</b>   |
| <b>TOTAL FOR REGULAR CARGO</b>                       | <b>50,584</b>   |
| <b>TOTAL</b>                                         | <b>115,897</b>  |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

Table D.25  
Tons of Transported Specialized Cargo  
1988

| Specialized Cargo                                    | Tons Transported |
|------------------------------------------------------|------------------|
| General furniture and moving                         | 8,580            |
| Perishable goods in refrigerated vehicles            | 2,658            |
| Construction materials and gravel                    | 11,832           |
| Unprocessed rural produce and animals                | 96,058           |
| Bottled liquids                                      | 3,802            |
| Tankers for transportation of fluids                 | 25,079           |
| Industrial gas cylinders                             | 101              |
| Tow trucks                                           | 3,147            |
| Petrochemical equipment                              | 1,358            |
| Telecommunication and electronic equipment           | 605              |
| Chemical products                                    | 126              |
| Automobile carriers                                  | 1,574            |
| High-density loads and oversized metallic structures | 3,095            |
| Explosives                                           | 65               |
| Glass                                                | 156              |
| Movie industry                                       | 226              |
| Other specialties                                    | 274              |
| <b>TOTAL FOR SPECIALIZED CARGO</b>                   | <b>158,736</b>   |
| <b>TOTAL FOR REGULAR CARGO</b>                       | <b>140,134</b>   |
| <b>TOTAL</b>                                         | <b>298,870</b>   |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal. Mexico City, Mexico, 1988.



**Table D.26**  
**Composition of Vehicle Fleet by State and Class of Service**  
**1988**

| State/District       | Regular Cargo | Specialized Cargo | Total          |
|----------------------|---------------|-------------------|----------------|
| Aguascalientes       | 1,016         | 1,105             | 2,121          |
| Baja California Nte. | 1,582         | 892               | 2,474          |
| Baja California Sur  | 841           | 30                | 871            |
| Campeche             | 296           | 1,112             | 1,408          |
| Coahuila             | 2,935         | 1,597             | 4,532          |
| Colima               | 406           | 164               | 570            |
| Chiapas              | 665           | 579               | 1,244          |
| Chihuahua            | 2,273         | 1,856             | 4,129          |
| Districto Federal    | 18,986        | 25,772            | 44,758         |
| Durango              | 2,485         | 511               | 2,996          |
| Guanajuato           | 1,988         | 4,573             | 6,561          |
| Guerrero             | 101           | 0                 | 101            |
| Hidalgo              | 246           | 549               | 795            |
| Jalisco              | 4,953         | 4,593             | 9,546          |
| México (Estado)      | 2,614         | 4,087             | 6,701          |
| Michoacán            | 2,786         | 1,975             | 4,761          |
| Morelos              | 474           | 969               | 1,443          |
| Nayarit              | 989           | 299               | 1,288          |
| Nuevo León           | 12,918        | 4,855             | 17,773         |
| Oaxaca               | 473           | 1,563             | 2,036          |
| Puebla               | 1,585         | 3,057             | 4,642          |
| Querétaro            | 429           | 1,019             | 1,448          |
| Quintana Roo         | 150           | 87                | 237            |
| San Luis Potosí      | 644           | 3,029             | 3,673          |
| Sinaloa              | 1,640         | 1,117             | 2,757          |
| Sonora               | 2,046         | 2,031             | 4,077          |
| Tabasco              | 206           | 547               | 753            |
| Tamaulipas           | 4,200         | 4,892             | 9,092          |
| Tlaxcala             | 94            | 119               | 213            |
| Veracruz             | 2,399         | 4,547             | 6,946          |
| Yucatán              | 1,314         | 573               | 1,887          |
| Zacatecas            | 311           | 1,259             | 1,570          |
| <b>TOTAL</b>         | <b>74,045</b> | <b>79,358</b>     | <b>153,403</b> |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

Table D.27  
Composition of Regular Cargo Fleet by Model Year and Vehicle Class  
1988

| Vehicle<br>Model<br>Year | Vehicle |        |       | Class  |     |        | TOTAL  |
|--------------------------|---------|--------|-------|--------|-----|--------|--------|
|                          | C-2     | C-3    | T-2   | T-3    | S-1 | S-2    |        |
| 1959                     | 209     | 94     | 208   | 223    | 7   | 370    | 1,111  |
| 1960                     | 127     | 43     | 49    | 88     | 4   | 122    | 433    |
| 1961                     | 164     | 56     | 36    | 57     | 4   | 110    | 427    |
| 1962                     | 145     | 50     | 52    | 98     | 4   | 112    | 461    |
| 1963                     | 202     | 137    | 56    | 86     | 3   | 147    | 633    |
| 1964                     | 263     | 154    | 50    | 153    | 5   | 216    | 843    |
| 1965                     | 332     | 166    | 43    | 123    | 2   | 202    | 868    |
| 1966                     | 307     | 159    | 28    | 95     | 2   | 187    | 778    |
| 1967                     | 513     | 286    | 36    | 125    | 3   | 215    | 1,186  |
| 1968                     | 698     | 397    | 45    | 213    | 5   | 314    | 1,674  |
| 1969                     | 751     | 438    | 69    | 235    | 6   | 411    | 1,910  |
| 1970                     | 821     | 543    | 57    | 297    | 6   | 587    | 2,316  |
| 1971                     | 797     | 512    | 42    | 366    | 6   | 599    | 2,326  |
| 1972                     | 965     | 491    | 80    | 437    | 6   | 698    | 2,686  |
| 1973                     | 917     | 636    | 78    | 605    | 6   | 1,076  | 3,331  |
| 1974                     | 1,051   | 739    | 115   | 832    | 9   | 1,491  | 4,264  |
| 1975                     | 1,232   | 887    | 155   | 996    | 8   | 1,536  | 4,849  |
| 1976                     | 1,153   | 866    | 115   | 1,131  | 4   | 1,204  | 4,532  |
| 1977                     | 607     | 709    | 98    | 567    | 9   | 757    | 2,811  |
| 1978                     | 812     | 764    | 72    | 898    | 8   | 997    | 3,705  |
| 1979                     | 968     | 984    | 65    | 1,592  | 11  | 1,581  | 5,547  |
| 1980                     | 1,513   | 1,558  | 130   | 2,681  | 17  | 2,330  | 9,071  |
| 1981                     | 1,046   | 1,207  | 134   | 2,927  | 19  | 1,692  | 8,229  |
| 1982                     | 634     | 656    | 57    | 831    | 22  | 539    | 3,246  |
| 1983                     | 247     | 308    | 27    | 386    | 20  | 267    | 1,471  |
| 1984                     | 213     | 167    | 0     | 430    | 18  | 283    | 1,368  |
| 1985                     | 435     | 265    | 0     | 697    | 14  | 358    | 2,147  |
| 1986                     | 172     | 145    | 0     | 272    | 9   | 203    | 915    |
| 1987                     | 82      | 102    | 0     | 145    | 5   | 132    | 565    |
| 1988                     | 57      | 61     | 0     | 88     | 8   | 68     | 342    |
| TOTAL                    | 17,433  | 13,580 | 1,897 | 17,674 | 250 | 18,804 | 74,045 |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

**Table D.28**  
**Composition of Specialized Cargo Fleet by Model Year and Vehicle Class**  
**1988**

| Vehicle<br>Model<br>Year | C-2    | C-3    | T-2 | T-3    | Vehicle |       | S-2   | S-3 | Class<br>R-2 | TOTAL |
|--------------------------|--------|--------|-----|--------|---------|-------|-------|-----|--------------|-------|
| 1959                     | 522    | 80     | 151 | 82     | 44      | 277   | 2     | 3   | 1,161        |       |
| 1960                     | 331    | 45     | 43  | 47     | 3       | 47    | 1     | 1   | 518          |       |
| 1961                     | 396    | 53     | 14  | 26     | 5       | 23    | 1     | 1   | 519          |       |
| 1962                     | 407    | 67     | 29  | 19     | 6       | 52    | 1     | 1   | 582          |       |
| 1963                     | 518    | 97     | 34  | 29     | 9       | 61    | 1     | 1   | 750          |       |
| 1964                     | 619    | 118    | 31  | 57     | 5       | 63    | 1     | 1   | 882          |       |
| 1965                     | 841    | 89     | 18  | 179    | 7       | 49    | 1     | 1   | 1,198        |       |
| 1966                     | 809    | 119    | 12  | 368    | 9       | 137   | 1     | 1   | 1,456        |       |
| 1967                     | 1,289  | 155    | 10  | 46     | 11      | 68    | 1     | 1   | 1,581        |       |
| 1968                     | 1,434  | 176    | 9   | 143    | 12      | 63    | 5     | 4   | 1,846        |       |
| 1969                     | 1,909  | 278    | 33  | 102    | 9       | 175   | 4     | 9   | 2,519        |       |
| 1970                     | 2,063  | 331    | 38  | 108    | 8       | 214   | 9     | 6   | 2,777        |       |
| 1971                     | 2,085  | 301    | 9   | 173    | 10      | 178   | 10    | 5   | 2,771        |       |
| 1972                     | 2,049  | 301    | 44  | 277    | 11      | 314   | 12    | 13  | 3,021        |       |
| 1973                     | 2,274  | 393    | 21  | 296    | 19      | 487   | 21    | 10  | 3,521        |       |
| 1974                     | 3,399  | 594    | 52  | 589    | 17      | 383   | 40    | 12  | 5,086        |       |
| 1975                     | 3,955  | 669    | 73  | 621    | 8       | 594   | 60    | 8   | 5,988        |       |
| 1976                     | 3,511  | 731    | 33  | 898    | 9       | 676   | 64    | 8   | 5,930        |       |
| 1977                     | 1,547  | 693    | 18  | 335    | 9       | 321   | 196   | 8   | 3,127        |       |
| 1978                     | 1,964  | 748    | 8   | 516    | 19      | 377   | 350   | 9   | 3,991        |       |
| 1979                     | 2,155  | 1,014  | 17  | 892    | 8       | 572   | 499   | 11  | 5,168        |       |
| 1980                     | 3,143  | 1,836  | 69  | 1,392  | 8       | 1,786 | 811   | 12  | 9,057        |       |
| 1981                     | 2,676  | 1,608  | 109 | 1,849  | 9       | 1,687 | 1,012 | 15  | 8,965        |       |
| 1982                     | 1,147  | 662    | 16  | 633    | 27      | 347   | 656   | 5   | 3,493        |       |
| 1983                     | 163    | 184    | 8   | 48     | 19      | 49    | 129   | 2   | 602          |       |
| 1984                     | 88     | 163    | 0   | 186    | 22      | 72    | 138   | 7   | 676          |       |
| 1985                     | 102    | 81     | 0   | 168    | 14      | 87    | 177   | 8   | 637          |       |
| 1986                     | 95     | 94     | 0   | 369    | 15      | 44    | 44    | 7   | 668          |       |
| 1987                     | 115    | 75     | 0   | 265    | 12      | 11    | 13    | 6   | 497          |       |
| 1988                     | 98     | 61     | 2   | 179    | 9       | 9     | 8     | 5   | 371          |       |
| TOTAL                    | 41,704 | 11,816 | 901 | 10,892 | 373     | 9,223 | 4,268 | 181 | 79,358       |       |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

Table D.29  
Composition of Cargo Fleet by Model Year and Vehicle Class  
1988

| Vehicle Model Year | C-2    | C-3    | T-2   | T-3    | Vehicle S-1 | S-2    | S-3   | Class R-2 | TOTAL   |
|--------------------|--------|--------|-------|--------|-------------|--------|-------|-----------|---------|
| 1959               | 731    | 174    | 359   | 305    | 51          | 647    | 2     | 3         | 2,272   |
| 1960               | 458    | 88     | 92    | 135    | 7           | 169    | 1     | 1         | 951     |
| 1961               | 560    | 109    | 50    | 83     | 9           | 133    | 1     | 1         | 946     |
| 1962               | 552    | 117    | 81    | 117    | 10          | 164    | 1     | 1         | 1,043   |
| 1963               | 720    | 234    | 90    | 115    | 12          | 208    | 3     | 1         | 1,383   |
| 1964               | 882    | 272    | 68    | 210    | 10          | 279    | 3     | 1         | 1,725   |
| 1965               | 1,173  | 255    | 74    | 302    | 9           | 251    | 1     | 1         | 2,066   |
| 1966               | 1,116  | 278    | 40    | 463    | 11          | 324    | 1     | 1         | 2,234   |
| 1967               | 1,802  | 441    | 46    | 171    | 14          | 283    | 8     | 2         | 2,767   |
| 1968               | 2,132  | 573    | 54    | 356    | 17          | 377    | 7     | 4         | 3,520   |
| 1969               | 2,660  | 716    | 102   | 337    | 15          | 586    | 4     | 9         | 4,429   |
| 1970               | 2,884  | 874    | 95    | 405    | 14          | 801    | 14    | 6         | 5,093   |
| 1971               | 2,882  | 813    | 51    | 539    | 16          | 777    | 14    | 5         | 5,097   |
| 1972               | 3,014  | 792    | 124   | 714    | 17          | 1,012  | 21    | 13        | 5,707   |
| 1973               | 3,191  | 1,029  | 99    | 901    | 25          | 1,563  | 31    | 13        | 6,852   |
| 1974               | 4,450  | 1,333  | 167   | 1,421  | 26          | 1,874  | 61    | 18        | 9,350   |
| 1975               | 5,187  | 1,556  | 228   | 1,617  | 16          | 2,130  | 92    | 11        | 10,837  |
| 1976               | 4,664  | 1,597  | 148   | 2,029  | 13          | 1,880  | 113   | 18        | 10,462  |
| 1977               | 2,154  | 1,402  | 116   | 902    | 18          | 1,078  | 254   | 14        | 5,938   |
| 1978               | 2,776  | 1,512  | 80    | 1,414  | 27          | 1,374  | 500   | 13        | 7,696   |
| 1979               | 3,123  | 1,998  | 82    | 2,484  | 19          | 2,153  | 839   | 17        | 10,715  |
| 1980               | 4,656  | 3,394  | 199   | 4,073  | 25          | 4,116  | 1,642 | 23        | 18,128  |
| 1981               | 3,722  | 2,815  | 243   | 4,776  | 28          | 3,379  | 2,204 | 27        | 17,194  |
| 1982               | 1,781  | 1,318  | 73    | 1,464  | 49          | 886    | 1,157 | 11        | 6,739   |
| 1983               | 410    | 492    | 35    | 434    | 39          | 316    | 338   | 9         | 2,073   |
| 1984               | 301    | 330    | 0     | 616    | 40          | 355    | 391   | 11        | 2,044   |
| 1985               | 537    | 346    | 0     | 865    | 28          | 445    | 551   | 12        | 2,784   |
| 1986               | 267    | 239    | 0     | 641    | 24          | 247    | 155   | 10        | 1,583   |
| 1987               | 197    | 177    | 0     | 410    | 17          | 143    | 103   | 15        | 1,062   |
| 1988               | 155    | 122    | 2     | 287    | 17          | 77     | 58    | 15        | 713     |
| TOTAL              | 59,137 | 25,396 | 2,798 | 28,566 | 623         | 28,027 | 8,570 | 286       | 153,403 |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.

**Table D.30**  
**State Enterprise Freight Firms by State and Class of Service**

| State/District       | Regular Cargo | Specialized Cargo | Other      | Total        |
|----------------------|---------------|-------------------|------------|--------------|
| Agascalientes        | 3             | 15                | 1          | 19           |
| Baja California Nte. | 46            | 26                | 2          | 74           |
| Baja California Sur  | 11            | 3                 | 2          | 16           |
| Campeche             | 6             | 8                 | 1          | 15           |
| Coahuila             | 78            | 38                | 5          | 121          |
| Colima               | 10            | 2                 | 0          | 12           |
| Chiapas              | 7             | 13                | 2          | 22           |
| Chihuahua            | 46            | 29                | 4          | 79           |
| Distrito Federal     | 421           | 494               | 21         | 936          |
| Durango              | 43            | 10                | 3          | 56           |
| Guanajuato           | 34            | 56                | 5          | 95           |
| Guerrero             | 5             | 1                 | 0          | 6            |
| Hidalgo              | 8             | 20                | 1          | 29           |
| Jalisco              | 112           | 88                | 6          | 206          |
| México (Estado)      | 45            | 76                | 7          | 128          |
| Michoacán            | 37            | 43                | 0          | 80           |
| Morelos              | 9             | 13                | 1          | 23           |
| Nayarit              | 10            | 13                | 3          | 26           |
| Nuevo León           | 245           | 124               | 9          | 378          |
| Oaxaca               | 21            | 26                | 3          | 50           |
| Puebla               | 69            | 60                | 7          | 136          |
| Querétaro            | 8             | 16                | 1          | 25           |
| Quintana Roo         | 3             | 3                 | 0          | 6            |
| San Luis Potosí      | 25            | 42                | 1          | 68           |
| Sinaloa              | 14            | 25                | 1          | 40           |
| Sonora               | 35            | 49                | 4          | 88           |
| Tabasco              | 6             | 17                | 1          | 24           |
| Tamaulipas           | 68            | 99                | 11         | 178          |
| Tlaxcala             | 4             | 9                 | 0          | 13           |
| Veracruz             | 59            | 61                | 19         | 139          |
| Yucatan              | 19            | 7                 | 0          | 26           |
| Zacatecas            | 5             | 30                | 0          | 35           |
| <b>TOTAL</b>         | <b>1,512</b>  | <b>1,516</b>      | <b>121</b> | <b>3,149</b> |

Source: Secretaría de Comunicaciones y Transportes, Estadísticas Básicas del Autotransporte Federal, Mexico City, Mexico, 1988.



# Table D.31

## North American Cargo Firms Flying Into Mexico 1988-October 1989

| Business                    | Authorized<br>Permits | Flights<br>Completed | Operating<br>Routes                                                       | Equipment<br>Used | Startup<br>Date |
|-----------------------------|-----------------------|----------------------|---------------------------------------------------------------------------|-------------------|-----------------|
| Aero Freight, Inc           | 1                     | 1                    | ELP-MEX                                                                   | DC-6              | 12/29/88        |
| Amerijet                    | 3<br>1                | 13<br>9              | MIA-MID                                                                   | B-727             | 11/1/88         |
| Trans Continental           | 7                     | 8                    | DTW-MEX<br>MGC-MEX<br>MSP-MEX                                             | DC-8              | 10/1/88         |
| <b>First Semester 1989</b>  |                       |                      |                                                                           |                   |                 |
| Aerial Transit Co.          | 3                     | 30                   | MIA-MID                                                                   | DC-6              | 2/7/89          |
| Amerijet                    | 8                     | 51                   | MIA-MID<br>PHO-MZT<br>MEX-GDL<br>MZT-MEX<br>GDL-ORL<br>MEX-MID<br>MIA-MEX | B-727             | 1/5/89          |
| Arrowair                    | 2                     | 2                    | FRA-MEX-<br>MID-BUE-MEX                                                   | DC-8              | 4/5/89          |
| Evergreen                   | 1                     | 1                    | FRA-MEX                                                                   | DC-8              | 4/5/89          |
| Florida West Agency         | 1                     | 1                    | MIA-MEX                                                                   | B-707             | 6/20/89         |
| Trans Air Link              | 3                     | 4                    | MIA-MEX<br>MIA-MID<br>MIA-CUN                                             | DC-6              | 1/5/89          |
| <b>Second Semester 1989</b> |                       |                      |                                                                           |                   |                 |
| Amerijet                    | 5                     | 30                   | MIA-MEX-MID<br>MIA-MEX<br>MIA-MEX-TLC                                     | B-727             | 7/6/89          |
| Connie Kalitta, Inc.        | 4                     | 44                   | DTW-MTY<br>FRA-MEX<br>DTW-ELP<br>DTW-ELP-MTY                              | DC-8              | 9/5/89          |

Source: Secretaría de Comunicaciones y Transportes, Departamento de Aviación, unbound figures from the Planning Division, Mexico City, Mexico.

Table D.32

Specialized Mexican Air Cargo Firms In Operation,  
1988 - October, 1989

| Business                                                                   | Permit     | Equipment                   | Startup Date |
|----------------------------------------------------------------------------|------------|-----------------------------|--------------|
| Transportes Aeromar, S.A. de C.V.                                          | TAN-SE-003 | No Equipment                | ?            |
| Interstal de Avacion, S.A.                                                 | TAN-SE-015 | 2 Convair 440               | 2/8/89       |
| Servicios Aereos de Carga, S.A.                                            | TAN-SE-022 | B-727                       | ?            |
| Linea Federal de Carga, S.A. de C.V.                                       | TAN-SE-011 | Cessna 310                  | ?            |
| Mayacarga Internacional, S.A. de C.V.                                      | TAN-SE-005 | DC-6                        | ?            |
| Transportacion Area Mexicana, S.A. de C.V.                                 | TAN-SE-008 | No Equipment                | ?            |
| Transporte de Carga Especializada<br>y Servicios Aeronaticos, S.A. de C.V. | TAN-SE-006 | DC-7-B                      | 1/12/89      |
| Transportes de Carga Aeropacifico,<br>S.A. de C.V.                         | TAN-SE-012 | Boeing C-97<br>(XA PII)     | 3/11/88      |
| Transportes Aeros Ejecutivos, S.A. de C.V.                                 | TAN-SE-004 | 3 Lear Jet 25<br>1 Jet Star | 2/8/89       |
| Transportes San Lucas, S.A. de C.V.                                        | TAN-SE-009 | DC-6                        | ?            |
| Aereo Union, S.A. de C.V.                                                  | TAN-SE-010 | B-272-100                   | ?            |
| Aviorpent, S.A. de C.V.                                                    | TAN-SE-025 | 2 Gulfstream                | ?            |
| Aerolineas Marcos, S.A. de C.V.                                            | TAN-SE-023 | 3 Westwind<br>4 Areva 101-B | ?            |

Source: Secretaria de Transportes y Comunicaciones, Departamento de Aviacion,  
Unbound figures from the Planning Division, Mexico City, Mexico

Table D.33

# Mexican Cargo Firms Flying Into The United States, 1988 - October, 1989

| Business                      | Authorized Permits | Flights Completed | Operating Routes | Equipment Used | Startup Date |
|-------------------------------|--------------------|-------------------|------------------|----------------|--------------|
| Mensajeria Pegaso Airborne    | 1                  | 3                 | SAT-TLC          | DC-8           | 12/17/88     |
| Servicios Aereos, S.A.        | 1                  | 1                 | ATL-TIJ          | LEL            | 9/23/88      |
| Mexicana de Aviacion          | 1                  | 2                 | MEX-LAS          | DC-10          | 9/19/89      |
| <b>First Semester 1989</b>    |                    |                   |                  |                |              |
| Transportacion Aerea Mexicana | 1                  | 4                 | MLA-MEX          | B-707          | 5/9/89       |
| Mensajeria Pegaso             | 1                  | 21                | SAT-TLC          | DC-8           | 1/7/89       |
| <b>Second Semester 1989</b>   |                    |                   |                  |                |              |
| Transportacion Area Mexicana  | 6                  | 6                 | MLA-MEX          | B-707          | 8/16/89      |

Source: Secretaria de Transportes y Comunicaciones, Departamento de Aviacion, Unbound Figures from the Planning Division, Mexico City, Mexico.

# **Table D.34A** **U.S.-Mexico All Cargo Proceeding Forecast**

Principle Elements of Applicants Proposed Services\*  
Forecast Year Ending June 30, 1990.

|                                       | <u>ATC</u>                                                    | <u>AmeriJet</u>           | <u>Evergreen</u>                               | <u>Federal Express</u>              | <u>UPS</u>                                                   |
|---------------------------------------|---------------------------------------------------------------|---------------------------|------------------------------------------------|-------------------------------------|--------------------------------------------------------------|
| Route Sought <sup>1</sup>             | Miami-Merida                                                  | Miami-Merida              | Houston-Toluca                                 | Harlingen-Toluca-Guadalajara        | Houston-Guadalajara-Toluca-Monterrey                         |
| Weekly Roundtrip Flights              | 3 <sup>2</sup>                                                | 3 <sup>2</sup>            | 5                                              | 5                                   | 5                                                            |
| Aircraft <sup>3</sup>                 | DC-6                                                          | B727-100                  | B727-100                                       | B727-100 <sup>4</sup>               | B727-100                                                     |
| Forecast Year                         |                                                               |                           |                                                |                                     |                                                              |
| Fuel Consumption (in 000s of gallons) | 436.8                                                         | .. <sup>5</sup>           | 1,237.2                                        | 3,525.0 <sup>6</sup>                | 1,566.0                                                      |
| Cargo Transported (in 000s of pounds) |                                                               |                           |                                                |                                     |                                                              |
| Small Packages                        |                                                               | .. <sup>5</sup>           | 1,857                                          | 1,602                               | 2,462                                                        |
| Air Cargo                             | .. <sup>7</sup>                                               | .. <sup>5</sup>           | 7,760 <sup>8</sup>                             | 10,046                              | 7,742                                                        |
| Total                                 | 8,340                                                         | .. <sup>5</sup>           | 9,617                                          | 11,648                              | 10,204                                                       |
| Financial Forecast (in millions)      |                                                               |                           |                                                |                                     |                                                              |
| Operating Revenue                     |                                                               | \$1.9                     | .. <sup>5</sup>                                | \$6.2                               | \$17.8                                                       |
| Operating Expenses                    |                                                               | \$1.7                     | .. <sup>5</sup>                                | \$5.7                               | \$12.8                                                       |
| Operating Profit/ Loss                |                                                               | \$0.2                     | .. <sup>5</sup>                                | \$0.5                               | \$5.0                                                        |
| Sources:                              | ATC-D-106<br>ATC-D-111<br>ATC-D-113<br>ATC-D-402<br>(revised) | AJ-D-300, p.1<br>AJ-D-330 | EZ-200<br>EZ-205<br>EZ-402<br>EZ-406<br>EZ-407 | FX-PH-100<br>FX-PH-201<br>FX-PH-401 | UPS-200, pp. 3-4<br>UPS-201<br>UPS-312<br>UPS-403<br>UPS-416 |

Source: U.S. Department of Transportation, Office of Hearings, United States-Mexico All-Cargo Service Proceeding, Docket 45959, Recommended Decision of Administrative Law Judge Burton S. Kolko, Washington, D.C., served July, 14, 1989.

<sup>1</sup> Based on Applicants' First Priority Only.

<sup>2</sup> Would increase to four after six months of service.

<sup>3</sup> All five applicants state that their current aircraft inventories would serve as the source for the equipment they would need to operate their proposals.

<sup>4</sup> Would be upgraded to DC-8 as demands require.

<sup>5</sup> Not provided for the weekly frequencies proposed. Applicant provided data for hypothetical 252 days per year operation (AJ-D-370).

<sup>6</sup> Over half of this amount would be consumed in the domestic portion of the operation.

<sup>7</sup> Includes 1,334 tons of fish and 2,836 tons of other cargo (ATC-D-301).

<sup>8</sup> Includes 349,000 pounds of USPS Mail and Express (EZ-407, p.1).

## Table D.34B

### U.S.-Mexico All-Cargo Proceeding Proposed Rates

U.S.-Mexico All-Cargo Proceeding D. 45959  
Proposed Rates From U.S. to Mexico

| <u>Aerial Transit Company</u>       |                       | <u>Rate Per Pound</u> |                         |                                 |
|-------------------------------------|-----------------------|-----------------------|-------------------------|---------------------------------|
| <u>From-To</u>                      | <u>Minimum Charge</u> | <u>0-660 Pounds</u>   | <u>Over 660 Pounds</u>  |                                 |
| Miami-Merida                        | \$37.00               | \$0.24                | \$0.22                  |                                 |
| Merida-Miami<br>Merida-Miami        |                       |                       |                         | <u>Specific Commodity Rates</u> |
|                                     |                       |                       |                         | Fresh Seafood                   |
|                                     |                       |                       |                         | Frozen Seafood                  |
|                                     |                       |                       |                         | \$0.21                          |
|                                     |                       |                       |                         | \$0.21†                         |
| <u>Amerijet International, Inc.</u> |                       |                       |                         |                                 |
| <u>From-To</u>                      | <u>Minimum Charge</u> | <u>Under 100 lbs.</u> | <u>100 to 1100 lbs.</u> | <u>Over 1100 lbs.</u>           |
| Miami-Merida                        | \$37.00               | \$0.39                | \$0.32                  | \$0.22                          |
| Miami-Toluca                        | 37.00                 | 0.64                  | 0.47                    | 0.39                            |
| Oakland-Guadalajara                 | 37.00                 | 0.65                  | 0.55                    | 0.45                            |
| Oakland-Toluca                      | 37.00                 | 0.75                  | 0.64                    | 0.53                            |
| Houston-Toluca                      | 37.00                 | 0.40                  | 0.31                    | 0.29                            |
| Houston-Guadalajara                 | 37.00                 | 0.44                  | 0.34                    | 0.31                            |

Source: U.S. Department of Transportation, Office of Hearings, United States-Mexico All-Cargo Service Proceeding.  
Docket 45959, Recommended Decision of Administrative Law Judge Burton S. Kolko, Washington, D.C.,  
served July 14, 1989.

†Space Available



# Table D.34C

## U.S.-Mexico All-Cargo Proceeding

### Proposed Rates

U.S. -Mexico All-Cargo Proceeding D.45959  
Proposed Rates from U.S. to Mexico

#### Evergreen International Airlines, Inc.

| From-To | Minimum Charge | 50 lbs or less | 51-99 lbs. | 100-499 lbs.<br>(per pound)*** | 500 lbs or over<br>(per pound)*** |
|---------|----------------|----------------|------------|--------------------------------|-----------------------------------|
| IAH-TLC | Not Stated     | --**           | \$0.664    | \$0.636                        | \$0.627                           |
| MIA-TLC | Not Stated     | --**           | \$0.786    | \$0.445                        | \$0.373                           |
| JFK-TLC | Not Stated     | --**           | \$0.786    | \$0.623                        | \$0.550                           |
| IND-TLC | Not Stated     | --**           | \$1.309    | \$1.309                        | \$1.218                           |
| MFE-TLC | Not Stated     | --**           | \$0.644    | \$0.666                        | \$0.636                           |

#### Federal Express Corporation

|             |         | <u>Minimum Rates</u> |         |
|-------------|---------|----------------------|---------|
| Letter      | \$28.00 | Letter               | \$15.00 |
| Courier-Pak | 38.00   | Courier-Pak          | 20.90   |
|             |         | Priority 1           | 28.00   |

#### Priority 1

|            |         | Hundred Weight |             |
|------------|---------|----------------|-------------|
| First lb.  | \$38.00 | 100-299        | \$3.95 /lb. |
| 2-5 lbs.   | 5.50/lb | 300-499        | \$3.70 /lb  |
| 6-10 lbs.  | 5.00/lb | 500-999        | \$3.45 /lb  |
| 11-15 lbs. | 4.50/lb | 1000-1999      | \$3.20 /lb  |
| 16-20 lbs. | 4.00/lb | 2000-2999      | \$3.00 /lb  |
| 21-99 lbs. | 3.75/lb |                |             |

#### Surcharges

|                                |                                             |
|--------------------------------|---------------------------------------------|
| Declared Values                | \$0.40/\$100                                |
| Maximum Declared Value:        |                                             |
| Letter/Courier-Pak             | \$100                                       |
| Priority 1                     | \$10,000 or \$9.07/lb, whichever is greater |
| Address Correction             | \$5.00                                      |
| Non-Account Billing            | \$5.00                                      |
| Saturday U.S. Pick-up/Delivery | \$10.00                                     |
| Out of Delivery Area Charge    | \$20.00 or \$0.20 /lb, whichever is greater |

Source: U.S. Department of Transportation, Office of hearings,  
United States-Mexico All-Cargo Service Proceeding, Docket 45959,  
 Recommended Decision of Administrative Law Judge Burton S. Kolke,  
 Washington, D.C., served July 14, 1989.

## Table D.34D

### U.S.-Mexico All-Cargo Proceeding

U.S.-Mexico All-Cargo Proceeding D. 45959  
Proposed Rates From U.S. to Mexico \*

#### United Parcel Service

Letter Rate \$25.00

#### Package Rates:

|            |                                           |
|------------|-------------------------------------------|
| 1 lb.      | \$36.00                                   |
| 2-10 lbs.  | \$36.00 + 5.00 for each lb. over 1 lb.    |
| 11-20 lbs. | \$81.00 + 4.00 for each lb. over 10 lbs.  |
| 21-22 lbs. | \$121.00 + 3.00 for each lb. over 20 lbs. |
| 23-33 lbs. | \$127.00 + 4.00 for each lb. over 22 lbs. |
| 34-38 lbs. | \$171.00 + 3.00 for each lb. over 33 lbs. |
| 39-59 lbs. | \$186.00 + 4.00 for each lb. over 38 lbs. |
| 60-70 lbs. | \$270.00 + 3.00 for each lb. over 59 lbs. |

Sources: ATC-D-110  
AJ-D-360  
EZ-408 through EZ-412

FX-311  
UPS- 311  
PC-R-400  
PC-R-402

\* Except for Aerial Transit company, which also proposed Specific Commodity Rates for seafood from Merida to Miami

\*\* In the absence of minimum charge information, the rate per pound applicable to the 50 lbs or less weight break cannot be accurately determined.

\*\*\* Rate per kilogram divided by 2.2.

Source: U.S. Department of Transportation, Office of hearings,  
United States-Mexico All-Cargo Service Proceeding, Docket 45959,  
Recommended Decision of Administrative Law Judge Burton S. Kolko,  
Washington, D.C., served July 14, 1989.

**Table D.35**  
**Growth of Gross Domestic Product and the Transportation Sector**

| Year | GDP in 1,000's<br>of Pesos | Growth<br>Rate | Transportation<br>Sector | Growth<br>Rate | Transportation<br>as % of GDP | Growth in<br>Transportation/<br>Growth in GDP |
|------|----------------------------|----------------|--------------------------|----------------|-------------------------------|-----------------------------------------------|
| 1952 | 131,839                    | -              | 3,188                    | -              | 2.42                          | -                                             |
| 1953 | 132,037                    | 0.15           | 3,032                    | -4.89          | 2.30                          | -                                             |
| 1954 | 145,470                    | 10.17          | 3,415                    | 12.63          | 2.35                          | 1.24                                          |
| 1955 | 157,751                    | 8.44           | 3,582                    | 4.89           | 2.27                          | 0.58                                          |
| 1956 | 168,396                    | 6.75           | 3,736                    | 4.30           | 2.22                          | 0.64                                          |
| 1957 | 181,141                    | 7.57           | 4,435                    | 18.71          | 2.45                          | 2.47                                          |
| 1958 | 190,778                    | 5.32           | 4,559                    | 2.80           | 2.39                          | 0.53                                          |
| 1959 | 196,547                    | 3.02           | 4,779                    | 4.83           | 2.43                          | 1.6                                           |
| 1960 | 212,586                    | 8.16           | 4,979                    | 4.18           | 2.34                          | 0.51                                          |
| 1961 | 223,040                    | 4.92           | 5,149                    | 3.41           | 2.31                          | 0.69                                          |
| 1962 | 233,462                    | 4.67           | 5,353                    | 3.96           | 2.29                          | 0.85                                          |
| 1963 | 251,906                    | 7.76           | 5,817                    | 8.67           | 2.31                          | 1.12                                          |
| 1964 | 281,472                    | 11.74          | 6,060                    | 4.18           | 2.15                          | 0.36                                          |
| 1965 | 299,677                    | 6.47           | 6,183                    | 2.03           | 2.06                          | 0.31                                          |
| 1966 | 320,469                    | 6.93           | 6,612                    | 6.94           | 2.06                          | 1.00                                          |
| 1967 | 340,731                    | 6.32           | 6,880                    | 4.05           | 2.02                          | 0.64                                          |
| 1968 | 368,236                    | 8.07           | 7,484                    | 8.78           | 2.03                          | 1.09                                          |
| 1969 | 391,745                    | 6.38           | 7,935                    | 6.03           | 2.03                          | 0.95                                          |
| 1970 | 444,271                    | -              | 18,570                   | -              | 4.18                          | -                                             |
| 1971 | 462,804                    | 4.17           | 19,745                   | 6.33           | 4.27                          | 1.52                                          |
| 1972 | 502,086                    | 8.49           | 22,520                   | 14.05          | 4.49                          | 1.65                                          |
| 1973 | 544,307                    | 8.41           | 23,781                   | 14.48          | 4.74                          | 1.72                                          |
| 1974 | 577,568                    | 6.11           | 28,986                   | 12.43          | 5.02                          | 2.03                                          |
| 1975 | 609,976                    | 5.11           | 31,722                   | 9.43           | 5.20                          | 1.85                                          |
| 1976 | 635,831                    | 4.24           | 32,928                   | 3.80           | 5.18                          | 0.90                                          |
| 1977 | 657,722                    | 3.44           | 34,836                   | 5.79           | 5.30                          | 1.68                                          |
| 1978 | 711,982                    | 8.25           | 39,202                   | 12.53          | 5.51                          | 1.52                                          |
| 1979 | 777,163                    | 9.15           | 44,318                   | 13.05          | 5.70                          | 1.43                                          |
| 1980 | 841,835                    | 8.32           | 49,797                   | 12.36          | 5.92                          | 1.49                                          |
| 1981 | 908,765                    | 7.95           | 54,801                   | 10.35          | 6.03                          | 1.30                                          |
| 1982 | 903,839                    | -0.54          | 51,240                   | -6.50          | 5.67                          | -                                             |
| 1983 | 856,174                    | -5.27          | 48,400                   | -5.54          | 5.65                          | -                                             |
| 1984 | 887,647                    | 3.68           | 51,308                   | 6.01           | 5.78                          | 1.63                                          |
| 1985 | 912,334                    | 2.78           | 51,733                   | 0.83           | 5.67                          | 0.30                                          |
| 1986 | 878,085                    | -3.78          | 49,084                   | -5.12          | 5.59                          | -                                             |

Source: Nacional Financiera, "La Economía Mexicana en Cifras," 1984; and Secretaría de Programación y Presupuesto, Anuario Estadístico de los E.U.M., 1986 as cited by Victor Islas in "Estructura y Desarrollo del Sector Transporte en México," El Colegio de México, Mexico City, Mexico, 1989, p. 50.

Table D.36

## Economically Active Population and Employment by Sector

| Year | Active<br>Population | Transportation &<br>Communication (%) | Primary<br>Sector % | Industrial<br>Sector % | Service<br>Sector % |
|------|----------------------|---------------------------------------|---------------------|------------------------|---------------------|
| 1952 | 8,800                | 2.7                                   | 57.5                | 16.6                   | 23.3                |
| 1953 | 9,077                | 2.7                                   | 57.0                | 16.9                   | 23.4                |
| 1954 | 9,363                | 2.8                                   | 56.6                | 17.2                   | 23.4                |
| 1955 | 9,657                | 2.9                                   | 56.2                | 17.5                   | 23.5                |
| 1956 | 9,961                | 2.9                                   | 55.9                | 17.8                   | 23.5                |
| 1957 | 10,274               | 3.0                                   | 55.4                | 18.1                   | 23.6                |
| 1958 | 10,597               | 3.0                                   | 54.9                | 18.4                   | 23.6                |
| 1959 | 10,930               | 3.1                                   | 54.5                | 18.7                   | 23.7                |
| 1960 | 11,274               | 3.2                                   | 54.1                | 19.0                   | 23.7                |
| 1961 | 11,466               | 3.1                                   | 52.4                | 19.4                   | 25.0                |
| 1962 | 11,661               | 3.1                                   | 50.8                | 19.8                   | 26.3                |
| 1963 | 11,859               | 3.1                                   | 50.3                | 20.7                   | 28.2                |
| 1964 | 12,060               | 3.0                                   | 47.4                | 20.7                   | 28.9                |
| 1965 | 12,265               | 3.0                                   | 45.8                | 21.1                   | 30.2                |
| 1966 | 12,473               | 2.9                                   | 44.1                | 21.5                   | 31.5                |
| 1967 | 12,685               | 2.9                                   | 42.5                | 21.9                   | 32.7                |
| 1968 | 12,901               | 2.9                                   | 40.8                | 22.3                   | 34.0                |
| 1969 | 13,120               | 2.8                                   | 39.2                | 22.7                   | 35.3                |
| 1970 | 13,343               | 2.8                                   | 37.5                | 23.1                   | 36.6                |
| 1971 | 13,895               | 2.8                                   | 36.9                | 23.4                   | 36.8                |
| 1972 | 14,470               | 2.9                                   | 36.4                | 23.7                   | 37.0                |
| 1973 | 15,068               | 3.0                                   | 35.9                | 24.0                   | 37.2                |
| 1974 | 15,689               | 3.1                                   | 35.3                | 24.3                   | 37.4                |
| 1975 | 16,334               | 3.1                                   | 34.7                | 24.6                   | 37.6                |
| 1976 | 17,003               | 3.2                                   | 34.2                | 24.8                   | 37.7                |
| 1977 | 17,700               | 3.3                                   | 33.6                | 25.1                   | 37.9                |
| 1978 | 18,422               | 3.4                                   | 33.1                | 25.4                   | 38.1                |
| 1979 | 19,172               | 3.4                                   | 32.6                | 25.7                   | 38.3                |
| 1980 | 19,951               | 3.5                                   | 32.0                | 26.0                   | 42.0                |
| 1981 | 20,669               | 3.6                                   | 31.3                | 26.2                   | 42.5                |
| 1982 | 21,413               | 3.6                                   | 30.6                | 26.4                   | 43.0                |
| 1983 | 22,184               | 3.7                                   | 29.9                | 26.6                   | 43.5                |
| 1984 | 22,983               | 3.7                                   | 29.2                | 26.8                   | 44.0                |
| 1985 | 23,810               | 3.5                                   | 28.5                | 27.0                   | 44.5                |
| 1986 | 24,667               | 3.8                                   | 27.8                | 27.2                   | 45.0                |
| 1987 | 25,555               | 3.9                                   | 27.1                | 27.4                   | 45.5                |

Source: The data on economically active population from 1952 to 1980 were taken from "La Economía Mexicana en Cifras," *Nacional Financiera*, 1981. For 1981 and 1982 they were taken from the same publication. The percentages were calculated with the data from the same sources for 1983 and 1984, *Anuario Estadístico de los E.U.M.*, 1986, as cited in Victor Islas, "Estructura y Desarrollo del Sector Transporte en México," Colegio de México, Mexico City, Mexico, 1989, p. 51.

**Table D.37**  
**Employment by Mode of Transportation, 1970-1982**

| Year | Vehicular<br>Transportation<br>Employees | Rail                                   |                             | Maritime                               |                             | Air                                    |                             | Total<br>Employees |
|------|------------------------------------------|----------------------------------------|-----------------------------|----------------------------------------|-----------------------------|----------------------------------------|-----------------------------|--------------------|
|      |                                          | Percentage of<br>Transportation Sector | Transportation<br>Employees | Percentage of<br>Transportation Sector | Transportation<br>Employees | Percentage of<br>Transportation Sector | Transportation<br>Employees |                    |
| 1970 | 380,932                                  | 78.6                                   | 92,338                      | 19.1                                   | 638                         | 0.1                                    | 10,480                      | 484,388            |
| 1971 | 396,187                                  | 78.7                                   | 94,020                      | 18.7                                   | 1,672                       | 0.3                                    | 11,488                      | 503,367            |
| 1972 | 405,144                                  | 78.6                                   | 95,126                      | 18.4                                   | 2,971                       | 0.6                                    | 12,420                      | 515,661            |
| 1973 | 413,906                                  | 78.2                                   | 95,804                      | 18.1                                   | 5,302                       | 1.0                                    | 14,285                      | 529,297            |
| 1974 | 423,110                                  | 78.6                                   | 93,957                      | 17.4                                   | 5,708                       | 1.1                                    | 15,766                      | 538,541            |
| 1975 | 432,470                                  | 78.0                                   | 98,498                      | 17.8                                   | 6,593                       | 1.2                                    | 17,227                      | 554,788            |
| 1976 | 438,557                                  | 77.3                                   | 103,307                     | 18.2                                   | 6,398                       | 1.1                                    | 19,007                      | 567,269            |
| 1977 | 451,430                                  | 78.3                                   | 96,099                      | 16.7                                   | 9,325                       | 1.6                                    | 19,618                      | 576,472            |
| 1978 | 471,584                                  | 78.7                                   | 95,996                      | 16.0                                   | 10,244                      | 1.7                                    | 21,521                      | 599,345            |
| 1979 | 509,021                                  | 79.6                                   | 95,362                      | 14.9                                   | 12,120                      | 1.9                                    | 22,586                      | 639,089            |
| 1980 | 553,146                                  | 79.5                                   | 103,334                     | 14.9                                   | 12,713                      | 1.8                                    | 26,195                      | 695,388            |
| 1981 | 575,557                                  | 79.8                                   | 103,503                     | 14.3                                   | 14,620                      | 2.0                                    | 28,005                      | 721,685            |
| 1982 | 602,852                                  | 80.2                                   | 103,507                     | 13.8                                   | 16,556                      | 2.2                                    | 29,028                      | 751,943            |

Source: Victor Islas, "Estructura y Desarrollo del Sector Transporte en México," Colegio de México, Mexico City, Mexico, 1989, p. 52.



Table D. 38

## Employment and Salary by Transportation Modes

## Census Data

| Mode                           | 1955    | 1960   | 1965    | 1970    | 1975    |
|--------------------------------|---------|--------|---------|---------|---------|
| <b>Highway</b>                 |         |        |         |         |         |
| Personnel                      | 30,174  | 29,864 | 41,529  | 54,370  | 62,027  |
| Total Salaries                 | 253.3   | 179.8  | 233.5   | 323.0   | 415.2   |
| Annual salary per person       | 8.39    | 6.02   | 5.62    | 5.94    | 6.69    |
| <b>Rail Transportation</b>     |         |        |         |         |         |
| Personnel                      | 89,862  | 60,659 | 70,330  | 92,338  | 98,498  |
| Total Salaries                 | 1,109.2 | 985.0  | 1,268.7 | 1,495.0 | 2,026.5 |
| Annual salary per person       | 12.34   | 16.24  | 18.04   | 16.19   | 20.57   |
| <b>Air Transportation</b>      |         |        |         |         |         |
| Personnel                      | 5,948   | 6,658  | 7,082   | 7,492   | 10,153  |
| Total Salaries                 | 114.2   | 149.9  | 239.2   | 358.1   | 562.7   |
| Annual salary per person       | 19.19   | 22.51  | 33.77   | 47.80   | 55.42   |
| <b>Maritime Transportation</b> |         |        |         |         |         |
| Personnel                      | 2,225   | 2,330  | 3,462   | 3,390   | 5,610   |
| Total Salaries                 | 20.5    | 18.4   | 43.2    | 58.0    | 99.6    |
| Annual salary per person       | 9.22    | 7.90   | 12.49   | 14.76   | 17.75   |

Note: Salaries are in millions of 1960 pesos.

Source: Secretaría de Industria y Comercio, IV, V, VI, and VII Censos de Transportes, in 1955, 1960, 1965, and 1970 respectively, and Secretaría de Programación y Presupuesto, VIII Censo de Transporte, 1975, Mexico City, Mexico. Salaries were adjusted for inflation through the Consumer Price Index; As cited by Victor Islas, "Estructura y Desarrollo del Sector Transporte en Mexico,"

Table D.39

## Price Indices of the Mexican Economy

| Year         | Price Indices          |                |              |                     |                   |
|--------------|------------------------|----------------|--------------|---------------------|-------------------|
|              | Gross Domestic Product | Transportation | Construction | Agricultural Sector | Industrial Sector |
| 1952         | 43.6                   | 71.3           | 28.8         | 53.2                | 53.6              |
| 1953         | 43.3                   | 77.8           | 28.2         | 56.0                | 52.5              |
| 1954         | 47.9                   | 74.2           | 33.4         | 61.3                | 57.4              |
| 1955         | 53.8                   | 81.3           | 38.2         | 63.4                | 65.2              |
| 1956         | 57.6                   | 84.8           | 42.2         | 69.3                | 68.3              |
| 1957         | 61.5                   | 74.2           | 45.5         | 76.1                | 71.2              |
| 1958         | 64.9                   | 73.9           | 53.5         | 75.6                | 74.4              |
| 1959         | 67.5                   | 79.8           | 54.9         | 77.4                | 75.3              |
| 1960         | 70.8                   | 84.8           | 63.5         | 78.6                | 79.0              |
| 1961         | 73.2                   | 85.4           | 58.9         | 84.5                | 79.7              |
| 1962         | 75.4                   | 84.6           | 59.5         | 87.3                | 81.2              |
| 1963         | 77.8                   | 85.3           | 71.3         | 92.5                | 81.6              |
| 1964         | 82.2                   | 91.6           | 68.1         | 94.4                | 85.1              |
| 1965         | 84.1                   | 95.7           | 75.3         | 95.6                | 86.7              |
| 1966         | 87.4                   | 94.5           | 82.9         | 94.0                | 87.8              |
| 1967         | 89.9                   | 96.8           | 88.1         | 93.6                | 90.3              |
| 1968         | 92.1                   | 97.0           | 87.6         | 94.5                | 92.0              |
| 1969         | 95.7                   | 98.5           | 93.1         | 95.0                | 94.0              |
| Base Yr 1970 | 100.0                  | 100.0          | 100.0        | 100.0               | 100.0             |
| 1971         | 105.9                  | 102.9          | 98.5         | 103.8               | 108.8             |
| 1972         | 112.5                  | 108.8          | 114.9        | 108.5               | 112.4             |
| 1973         | 126.9                  | 114.7          | 121.3        | 133.9               | 123.7             |
| 1974         | 155.8                  | 134.1          | 156.8        | 169.2               | 153.0             |
| 1975         | 180.3                  | 165.2          | 200.7        | 196.3               | 173.4             |
| 1976         | 215.6                  | 206.9          | 248.5        | 230.8               | 203.3             |
| 1977         | 281.2                  | 267.9          | 321.0        | 285.8               | 273.7             |
| 1978         | 328.2                  | 314.8          | 381.5        | 331.8               | 311.5             |
| 1979         | 394.8                  | 361.7          | 470.1        | 397.9               | 365.4             |
| 1980         | 508.0                  | 443.3          | 595.5        | 471.6               | 469.8             |
| 1981         | 646.6                  | 571.7          | 771.2        | 602.7               | 578.5             |
| 1982         | 1,042.1                | 900.9          | 1,197.7      | 868.5               | 918.3             |
| 1983         | 2,002.3                | 1,783.1        | 2,173.8      | 1,655.1             | 1,916.3           |
| 1984         | 3,238.7                | 2,949.0        | 3,431.8      | 2,945.3             | 3,239.6           |
| 1985         | 4,996.9                | 4,391.0        | 5,317.6      | 4,592.8             | 4,964.8           |
| 1986         | 8,857.7                | 8,312.5        | 9,441.8      | 8,199.1             | 9,388.2           |

Source: Banco de México, Cuentas Nacionales y Acervos de Capital, 1950-1967, and, Estadísticas de la Oficina de Cuentas Nacionales de Producción, 1960-1976, and Secretaría de Programación y Presupuesto, Sistema de Cuentas Nacionales de México, 1981 and 1983 editions; as cited by Victor Islas in "Estructura y Desarrollo del Sector Transporte en México," Colegio de México, Mexico City, Mexico, 1989, p. 55.

**Table D.40**  
**Subsidies in the Transportation Sector**

| Year | Public Sector<br>Deficit | Subsidies<br>to Rail<br>Sector | Subsidies to<br>Air<br>Transportation<br>Sector | Subsidies to<br>Roads and<br>Bridges | Total<br>Subsidies | Percentage of<br>Total Deficit |
|------|--------------------------|--------------------------------|-------------------------------------------------|--------------------------------------|--------------------|--------------------------------|
| 1970 | 8,056                    | 1,947                          |                                                 |                                      | 1,947              | 24.2                           |
| 1971 | 11,082                   | 2,267                          |                                                 |                                      | 2,267              | 20.5                           |
| 1972 | 23,122                   | 2,451                          |                                                 |                                      | 2,451              | 10.6                           |
| 1973 | 36,945                   | 2,740                          |                                                 |                                      | 2,740              | 7.4                            |
| 1974 | 51,557                   | 3,481                          | 177.0                                           |                                      | 3,658              | 7.1                            |
| 1975 | 100,829                  | 3,676                          | 397.0                                           |                                      | 4,073              | 4.0                            |
| 1976 | 138,938                  | 5,423                          |                                                 |                                      | 5,423              | 3.9                            |
| 1977 | 96,269                   | 3,060                          | 107.0                                           |                                      | 3,167              | 3.3                            |
| 1978 | 130,367                  | 8,835                          | 880.0                                           |                                      | 9,715              | 7.5                            |
| 1979 | 232,062                  | 11,037                         | 312.0                                           |                                      | 11,349             | 4.9                            |
| 1980 | 333,458                  | 15,261                         | 399.0                                           |                                      | 15,660             | 4.7                            |
| 1981 | 865,312                  | 23,912                         | 899.0                                           |                                      | 24,811             | 2.9                            |
| 1982 | 1,739,582                | 34,262                         | 2,050.0                                         |                                      | 36,312             | 2.1                            |
| 1983 | 1,705,574                | 77,233                         | 6,853.0                                         | 12,014                               | 96,100             | 5.6                            |
| 1984 | 2,046,617                | 67,524                         | 13,508.0                                        | 21,327                               | 102,359            | 5.0                            |

Source: José López Portillo in the sixth "Informe de Gobierno," and Miguel de la Madrid in the third "Informe de Gobierno," as cited by Victor Islas in "Estructura y Desarrollo del Sector Transporte en México," Colegio de México, Mexico City, Mexico, 1989, p. 57.

**Table D. 41**  
**The Transportation Sector and the Balance of Payments**  
(Millions of Dollars)

| Concept                         | 1960  | 1970  | 1975  | 1980   | 1983   |
|---------------------------------|-------|-------|-------|--------|--------|
| <b>Exports</b>                  |       |       |       |        |        |
| 1. Total Goods and Services     | 1,320 | 2,745 | 6,066 | 23,458 | 26,432 |
| 2. Transportation and Insurance | 0.2   | 47    | 181   | 446    | 478    |
| 3. 2/1 (%)                      | .01   | 1.7   | 3.0   | 1.9    | 1.8    |
| Average of Latin America        | 3.4   | 4.8   | 4.9   | 4.7    | 4.9    |
| <b>Imports</b>                  |       |       |       |        |        |
| 4. Total Goods and Services     | 1,521 | 3,417 | 8,466 | 25,683 | 12,480 |
| 5. Transportation and Insurance | 64.8  | 179   | 526   | 1,934  | 1,224  |
| 6. 5/4 (%)                      | 4.2   | 5.2   | 6.2   | 7.5    | 9.8    |
| Average of Latin America        | 10.6  | 10.8  | 10.5  | 9.9    | 9.7    |

Source: United Nations Economic Commission on Latin America and the Caribbean, Anuario Estadístico de América Latina, 1984 as cited by Victor Islas, "Estructura y Desarrollo del Sector Transporte en Mexico," Colegio de Mexico, Mexico City, Mexico, 1989, p.59.

**Table D.42**  
**Productivity in the Transportation Sector**

| Year | Millions of Millions of |             |                         | Millions of Millions of |                  |              | Millions of Millions of |                  |              | Millions of Millions of |                  |   | Total Transport Product / Active Employees in Sector |
|------|-------------------------|-------------|-------------------------|-------------------------|------------------|--------------|-------------------------|------------------|--------------|-------------------------|------------------|---|------------------------------------------------------|
|      | Tons / Employee         | Tons/ Total | Tons / No. of Rail Cars | Tons / Kilometer        | Tons / Employees | Tons / Total | Tons / No. of Rail Cars | Tons / Kilometer | Tons / Total | Tons / No. of Rail Cars | Tons / Kilometer |   |                                                      |
| 1952 | 0.40                    | 3.23        | 1.48                    | 1.40                    | -                | -            | -                       | 1.87             | 1.68         | -                       | -                | - |                                                      |
| 1953 | 0.26                    | 2.00        | 1.03                    | 0.98                    | -                | -            | -                       | 1.89             | 1.67         | -                       | -                | - |                                                      |
| 1954 | 0.27                    | 2.06        | 1.08                    | 1.02                    | -                | -            | -                       | 1.90             | 1.68         | -                       | -                | - |                                                      |
| 1955 | 0.28                    | 2.28        | 1.12                    | 1.08                    | -                | 18.98        | -                       | 1.91             | 1.71         | -                       | -                | - |                                                      |
| 1956 | 0.32                    | 2.61        | 1.21                    | 1.15                    | -                | -            | -                       | 1.92             | 1.65         | -                       | -                | - |                                                      |
| 1957 | 0.35                    | 2.89        | 1.27                    | 1.24                    | -                | -            | -                       | 1.93             | 1.64         | -                       | -                | - |                                                      |
| 1958 | 0.35                    | 2.73        | 1.14                    | 1.20                    | -                | -            | -                       | 1.94             | 1.63         | -                       | -                | - |                                                      |
| 1959 | 0.38                    | 2.71        | 1.10                    | 1.22                    | -                | -            | -                       | 1.96             | 1.62         | -                       | -                | - |                                                      |
| 1960 | 0.53                    | 3.26        | 1.30                    | 1.38                    | -                | 20.80        | -                       | 1.97             | 1.65         | -                       | -                | - |                                                      |
| 1961 | 0.43                    | 2.79        | 1.18                    | 1.30                    | -                | -            | -                       | 1.98             | 1.58         | -                       | -                | - |                                                      |
| 1962 | 0.41                    | 2.83        | 1.21                    | 1.30                    | -                | -            | -                       | 1.99             | 1.55         | -                       | -                | - |                                                      |
| 1963 | 0.45                    | 2.96        | 1.36                    | 1.44                    | -                | -            | -                       | 2.00             | 1.55         | -                       | -                | - |                                                      |
| 1964 | 0.50                    | 3.23        | 1.49                    | 1.58                    | -                | -            | -                       | 2.02             | 1.55         | -                       | -                | - |                                                      |
| 1965 | 0.58                    | 3.23        | 1.56                    | 1.73                    | -                | -            | -                       | 2.03             | 1.62         | -                       | -                | - |                                                      |
| 1966 | 0.56                    | 3.09        | 1.52                    | 1.70                    | -                | -            | -                       | 2.04             | 1.66         | -                       | -                | - |                                                      |
| 1967 | 0.54                    | 3.12        | 1.61                    | 1.81                    | -                | -            | -                       | 2.05             | 1.72         | -                       | -                | - |                                                      |
| 1968 | 0.56                    | 3.21        | 1.66                    | 1.86                    | -                | -            | -                       | 2.07             | 1.77         | -                       | -                | - |                                                      |
| 1969 | 0.57                    | 3.25        | 1.73                    | 1.97                    | -                | -            | -                       | 2.08             | 1.81         | -                       | -                | - |                                                      |
| 1970 | 0.51                    | 3.17        | 1.69                    | 1.94                    | 0.37             | 27.51        | -                       | 2.13             | 1.96         | 15.642                  | -                | - |                                                      |
| 1971 | 0.54                    | 2.72        | 1.78                    | 2.08                    | 0.37             | -            | -                       | 2.13             | 1.99         | 15.909                  | -                | - |                                                      |
| 1972 | 0.53                    | 2.61        | 1.73                    | 2.02                    | 0.38             | -            | -                       | 2.13             | 1.92         | 16.707                  | -                | - |                                                      |
| 1973 | 0.56                    | 2.83        | 1.82                    | 2.17                    | 0.39             | -            | -                       | 2.13             | 1.92         | 17.858                  | -                | - |                                                      |
| 1974 | 0.66                    | 3.16        | 1.89                    | 2.49                    | 0.39             | -            | -                       | 2.13             | 1.95         | 19.466                  | -                | - |                                                      |
| 1975 | 0.64                    | 3.13        | 1.67                    | 2.54                    | 0.40             | 29.80        | -                       | 2.13             | 1.93         | 20.294                  | -                | - |                                                      |
| 1976 | 0.61                    | 3.10        | 1.56                    | 2.41                    | 0.41             | -            | -                       | 2.13             | 1.93         | 20.463                  | -                | - |                                                      |
| 1977 | 0.71                    | 3.57        | 1.66                    | 2.85                    | 0.42             | -            | -                       | 2.13             | 1.95         | 21.031                  | -                | - |                                                      |
| 1978 | 0.72                    | 3.51        | 1.68                    | 2.76                    | 0.43             | -            | -                       | 2.15             | 1.97         | 22.448                  | -                | - |                                                      |
| 1979 | 0.71                    | 3.52        | 1.55                    | 2.68                    | 0.44             | -            | -                       | 2.22             | 1.96         | 23.152                  | -                | - |                                                      |
| 1980 | 0.59                    | -           | 1.56                    | 2.42                    | 0.46             | -            | -                       | 2.28             | 1.99         | 23.908                  | -                | - |                                                      |
| 1981 | 0.62                    | -           | 1.60                    | 2.54                    | 0.48             | -            | -                       | 2.32             | 1.99         | 25.352                  | -                | - |                                                      |



**Table D.43**

**Port of Laredo  
Northbound Truck Shipments by Month  
Importations into USA  
Tractor-Trailer Truckloads Inspected**

| <u>Truckloads</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> |
|-------------------|-------------|-------------|-------------|
| January           | 8,531       | 10,393      | 11,549      |
| February          | 8,322       | 9,028       | 12,388      |
| March             | 9,403       | 12,147      | 14,244      |
| April             | 10,324      | 12,237      | 13,836      |
| May               | 10,262      | 12,691      | 13,770      |
| June              | 9,848       | 13,341      | 13,808      |
| July              | 10,013      | 13,695      | 12,302      |
| August            | 10,119      | 13,005      | 14,603      |
| September         | 9,848       | 13,136      | 13,392      |
| October           | 9,576       | 14,768      | 13,609      |
| November          | 9,301       | 13,022      | 14,310      |
| December          | 11,683      | 13,363      | 12,273      |
| Total             | 117,230     | 150,826     | 160,084     |

Source: Laredo Development Foundation, Impact of Maquiladoras and Mexican Trade on Laredo Truck Traffic: 1986-1988, Laredo, Texas, Laredo Development Foundation, 1989.

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